ORDER No.AD0104099C3

Service Manual

Portable CD Player

COMPACT disc DIGITAL AUDIO

MASH multi-stagenoiseshaping

SL-SX289V

Traverse Deck: RAE0145Z Mechanism Series

Colour

(S).....Silver Type

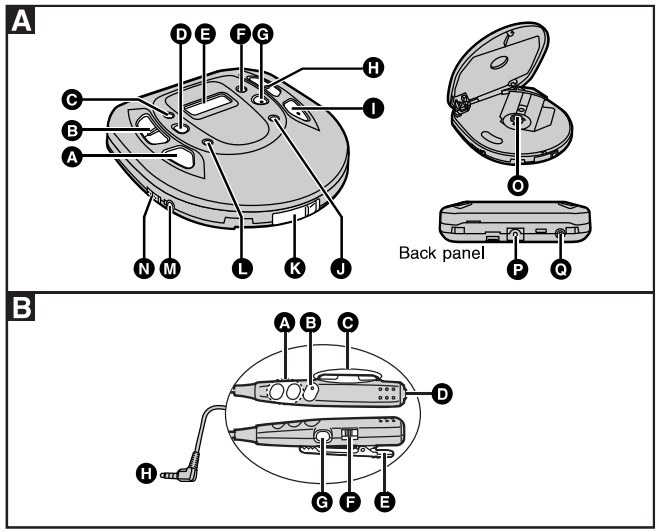
Areas

GC.....Asia, Latin America, Middle Near East, Africa and Saudi Arabia.

GN.....Oceania.

SPECIFICATIONS

Specifications



Main unit A

- Ⓐ Stop/operation off button (■, OPR OFF)
- Ⓑ Tuning/skip/search buttons (►► ►►| +, ◄◄ |◄◄ −)
- Ⓒ Memory/recall button (MEMORY/RECALL)
- Ⓓ Tuning mode select button (TUNING MODE)
- Ⓔ Display
- Ⓕ S-XBS button (S-XBS)
- Ⓖ Tuner on/band select button (RADIO/BAND)
- Ⓗ Headphone volume control buttons (VOL+, VOL−)
- Ⓘ Play/pause button (►❚❚)
- Ⓙ Sensitivity control, play mode button (FM RECEPT ▬ CITY/NOR, MODE)
- Ⓚ Open switch (OPEN ►)
- Ⓛ Monaural/stereo button (FM MODE MONO/ST)
- Ⓜ Headphone jack (🎧)
- Ⓝ Hold switch (HOLD)
- Ⓞ CD release button (PUSH)
- Ⓟ Hole for car mounting base
- Ⓠ DC IN jack (DC IN 4.5 V ⟐⊂⟐)

Wired remote control B

- Ⓐ Skip/search buttons (|◄◄, ►►|)
- Ⓑ Play/stop/operation off button (■/►)
- Ⓒ Volume control buttons (−, VOL, +)
- Ⓓ Earphone jack
- Ⓔ Clip
- Ⓕ Hold switch (HOLD)
- Ⓖ Tuner on/off/band select button (RADIO)
- Ⓗ Plug

CD SECTION

■ Audio

No. of channels:	**2 channels (left and right, stereo)**
Frequency response:	**20 ~ 20,000 Hz (+0dB ~ -8dB)**
Headphones output level:	**RMS Max. 6mW+6mW/ 16 Ω / (adjustable)**

■ Pickup

Light source:	**Semiconductor laser**
Wavelength:	**780 nm**

RADIO SECTION

■ Audio

Selectivity:	**FM 42dB (f400kHz)**
	AM 7.4kHz (6dB) 21dB/9kHz
Sensitivity:	**FM 5.6 μV (0.1mW output, -3dB Limit sense) / AM 354.8 μV/m (0.1mW output)**

■ Frequency

Radio frequency:	**FM;**	**87.5-108.0MHz (0.05MHz steps)**
	AM;	**520-1630kHz (10kHz steps)**
		522-1629kHz (9kHz steps)

GENERAL

Operational temperature range:	**0°C-40°C**
Rechargeable temperature range:	**5°C-40°C**
Power supply	**DC 4.5V**
Power Consumption (CD/radio)	
AC adaptor;	**3.0W/2.4W**
Battery (DC 3V);	**0.4W/0.15W**
When recharging;	**4.1W**

■ Play time

[When used in hold mode, at 25°C (77°F) temperature and on flat and stable surface]

Batteries used	CD	RADIO (FM BAND)
2 alkaline batteries	25h	75h
2 optional rechargeable batteries / (P-3GAVA/2B))	11h	30h

-The play time may be less depending on the operating conditions.

-Play time will be considerably reduced when playing CD-RW.

Recharging time:	**5h**
Dimensions (WxHxD)	**128x29.8x131.5mm**
Weight:	**264g (with batteries)**
	220g (without batteries)

Note:

Specifications are subject to change without notice. / Weight and dimensions are approximate.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

1. Precaution of Laser Diode

CAUTION:

This unit utilizes a class 1 laser. Invisible laser radiation is emitted from the pickup lens when the unit is turned on:

1. **Do not look directly into the pickup lens.**
2. **Do not use optical instruments to look at the pickup lens.**
3. **Do not adjust tne preset variable resistor on the optical pickup.**
4. **Do not disassemble the optical pickup unit.**
5. **If the optical pickup is replaced, use the manufactures specified replacement pickup only.**
6. **Use of control or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.**

2. Accessories

- **AC adaptor for (GC) area .....1 pc. (RFEA403Z-S)**
- **AC adaptor for (GN) area.....1 pc. (RFEA403A-S)**
- **AC plug adaptor for (GC) area.....1 pc. / (SJP5213-2)**
- **Stereo earphones.....1 pc. (L0BAB0000124)**
- **Wired remote control.....1 pc. (N2QCBD000011)**

3. Operating Instructions

4. Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

4.1. Handling the traverse deck (optical pickup)

1. **The traverse deck (optical pickup) is an extremely high-precision construction and must not be subjected to impact, excessive vibration, or other types of rough handling.**
2. **In order to prevent static electricity damage to the laser diode, use a short pin or similar tool to short the optical pickup's flexible circuit boards after they have been disconnected from the main circuit board. (as shown in Fig. 1)**
3. **Handle the flexible circuit boards with care; excessive force could cause them to be broken.**
4. **Do not turn the pre-set variable resistor (for adjustment of the laser power); it has been adjusted at the factory. (as shown in Fig. 2)**

Fig. 1

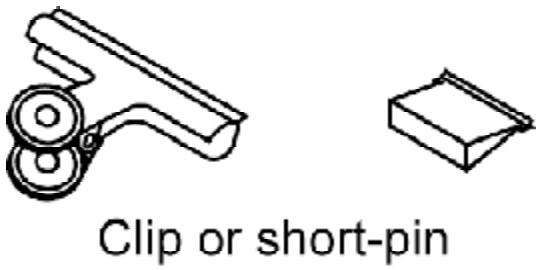
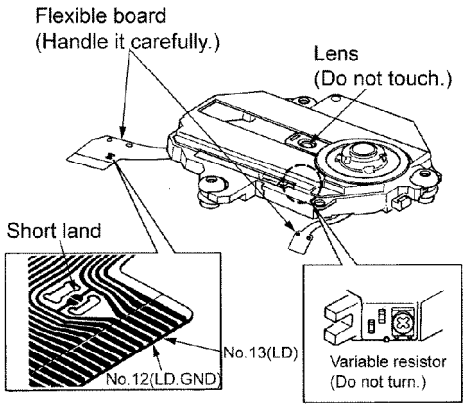


Fig. 2



4.2. Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body. (as shown in Fig. 3)
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet. (as shown in Fig. 4)

Caution

The static electricity of your clothes will not be grounded through the wrist strap.
So, take care not to let your clothes touch the traverse deck (optical pickup).

Fig. 3

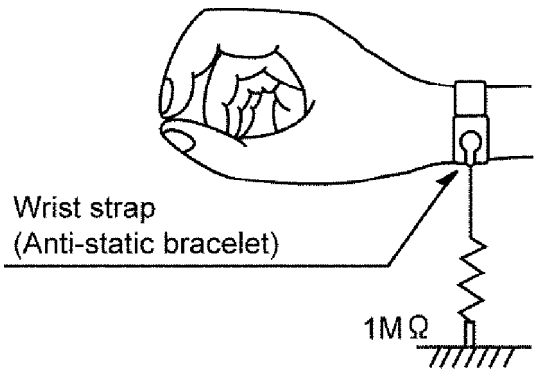
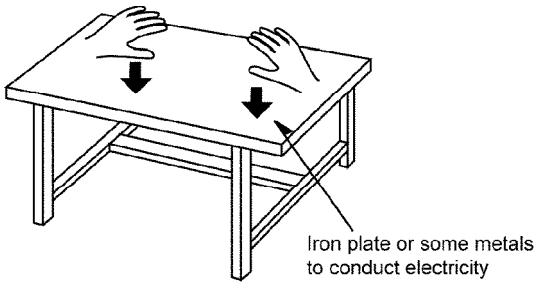


Fig. 4



5. Operation Checks and Component Replacement Procedures

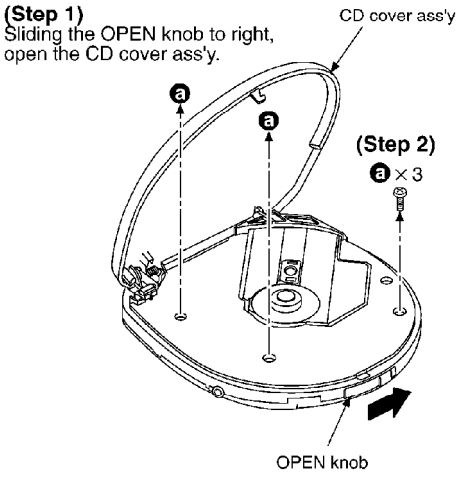
- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are

described only when required.

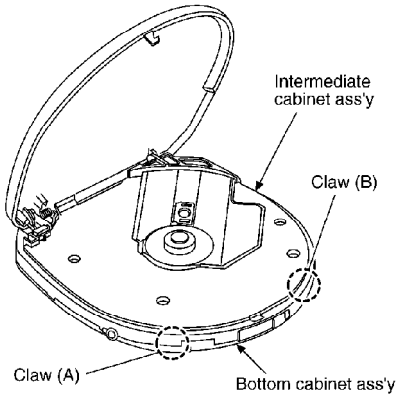
5.1. Checking for the main P.C.B.

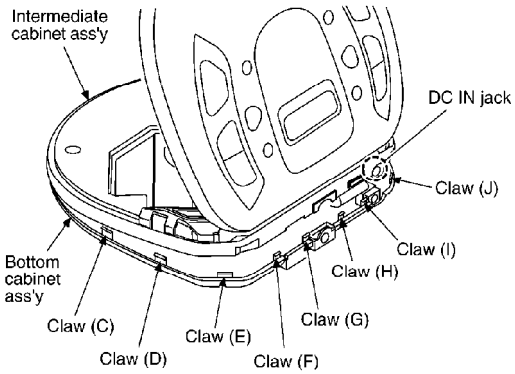
5.1.1. Checking for the main P.C.B. / (A side)

(Step 1)
Sliding the OPEN knob to right, open the CD cover ass'y.



(Step 3)
Spread the clearance between the bottom cabinet ass'y and intermediate cabinet ass'y manually.



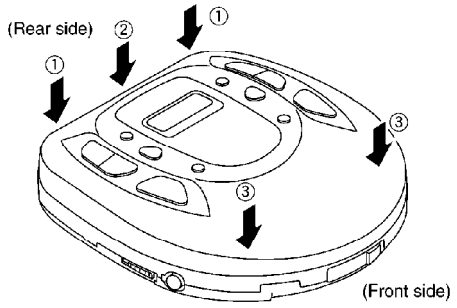


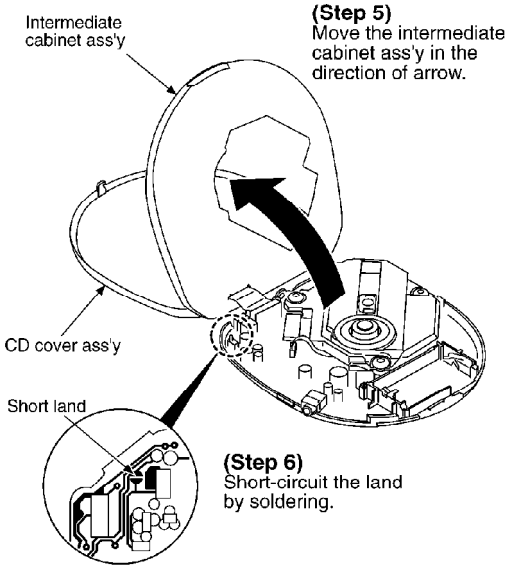
(Step 4)
Open the clearance between the bottom cabinet ass'y and intermediate cabinet ass'y, and then release the claw (C) to claw (J) in turn.

NOTE:
Take care not to break the DC IN Jack provided with intermediate cabinet.

■ **CD cover ass'y and intermediate reassembly procedure**

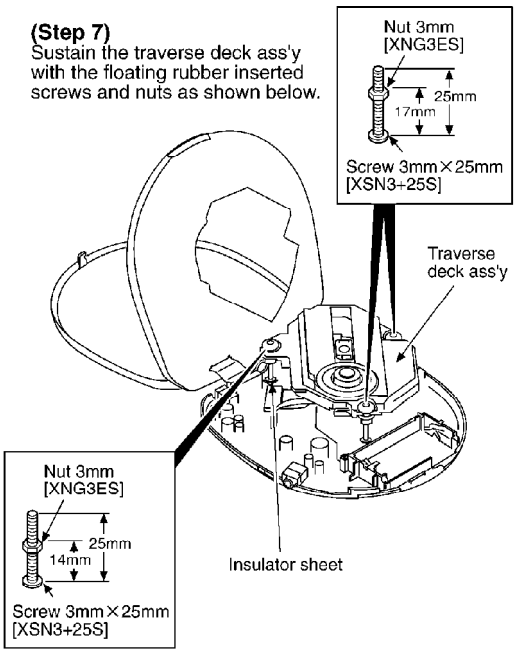
① Fit together right side and left side of rear part.
(Either right or left side)
② Fit together the center of rear part.
③ Fit together the right and left of front part.
(Either right or left side)





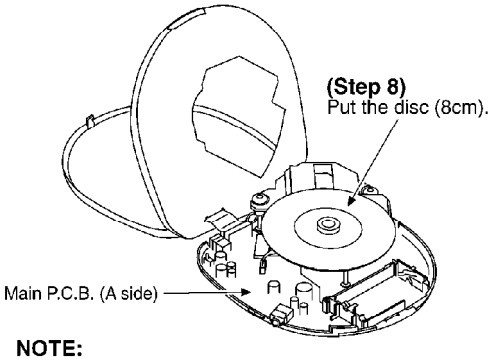
(Step 5)
Move the intermediate cabinet ass'y in the direction of arrow.

(Step 6)
Short-circuit the land by soldering.



NOTE:
- The tip of screw must not protrude above the floating rubber.
- To keep insulation, place the insulator sheet (paper etc.) between the P.C.B. and the head of screws.

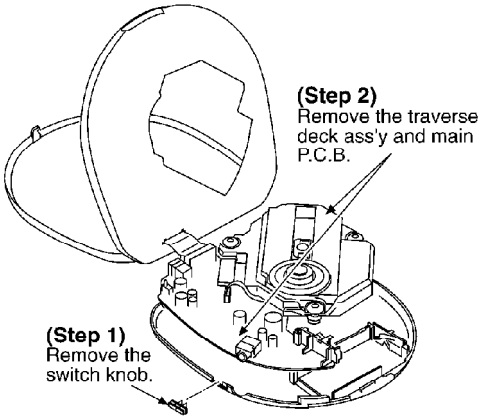
- Check the main P.C.B. (A side) as shown below.

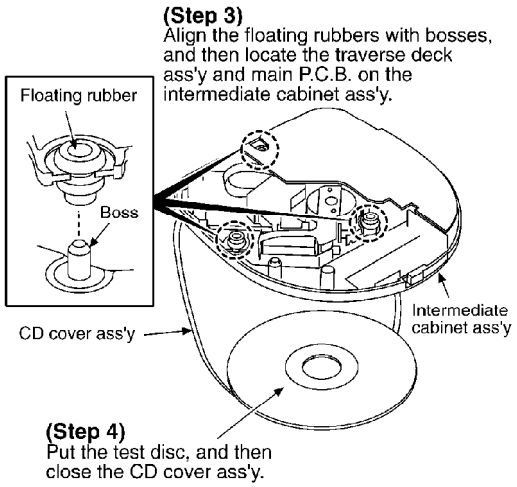


NOTE:
After checking, unsolder the short land to open circuit.

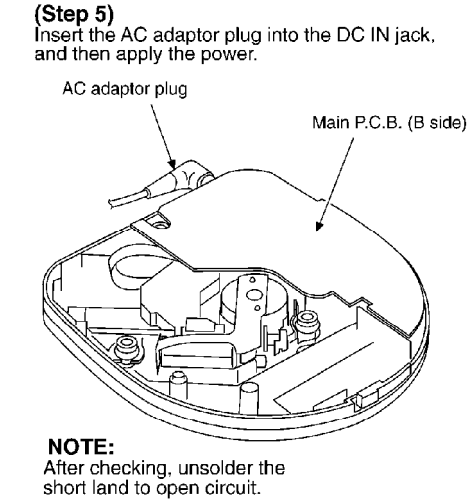
5.1.2. Checking for the main P.C.B. / (B side)

- Follow the (Step 1) - (Step 6) of item 5.1.1.



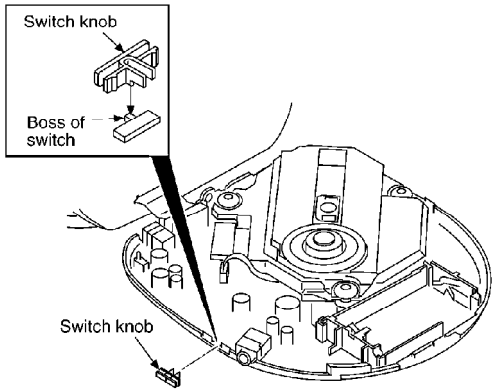

(Step 3)
Align the floating rubbers with bosses, and then locate the traverse deck ass'y and main P.C.B. on the intermediate cabinet ass'y.
Floating rubber
Boss
Intermediate cabinet ass'y
CD cover ass'y
(Step 4)
Put the test disc, and then close the CD cover ass'y.

- Check the main P.C.B. (B side) as shown below.


(Step 5)
Insert the AC adaptor plug into the DC IN jack, and then apply the power.
AC adaptor plug
Main P.C.B. (B side)
NOTE:
After checking, unsolder the short land to open circuit.

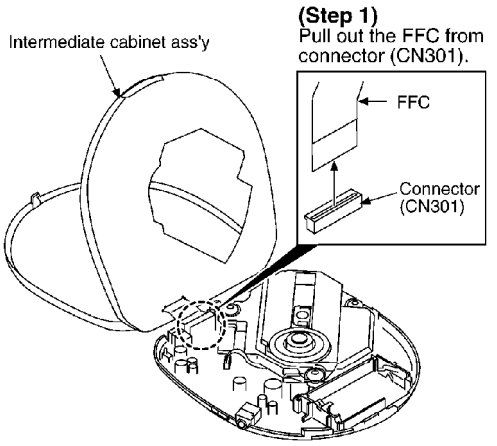
Notice for installation of switch knobs

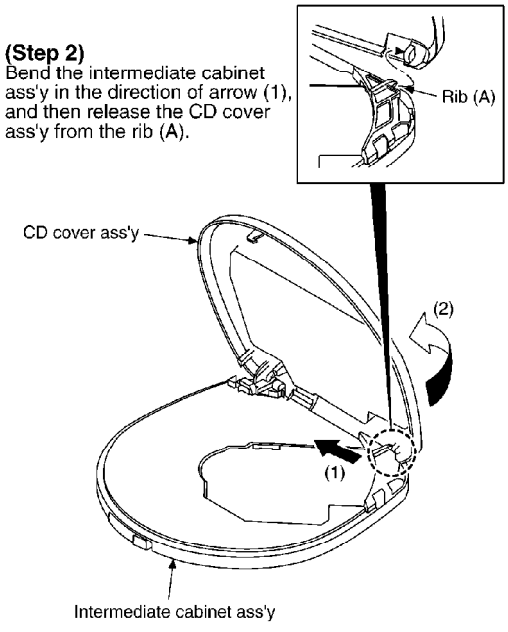
- Make sure the boss of switch are fit in the switch knob.



5.2. Checking for the tuner P.C.B.

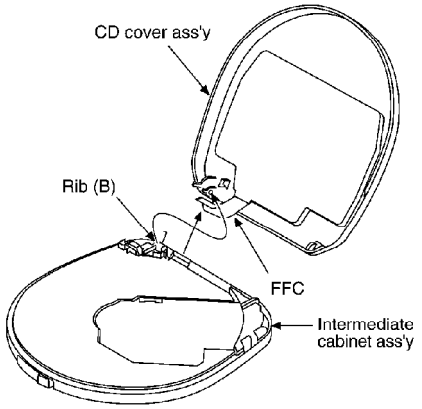
- Follow the (Step 1) - (Step 5) of item 5.1.1.



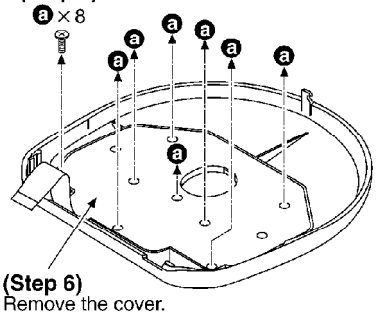

(Step 2)
Bend the intermediate cabinet ass'y in the direction of arrow (1), and then release the CD cover ass'y from the rib (A).
Rib (A)
CD cover ass'y
(2)
(1)
Intermediate cabinet ass'y

(Step 3)
Remove the CD cover ass'y from the rib (B).

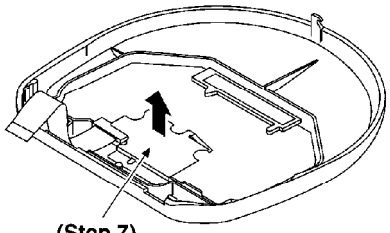
(Step 4)
Draw the FPC from the intermediate cabinet ass'y.
(Take care not to damage the FPC.)



(Step 5)



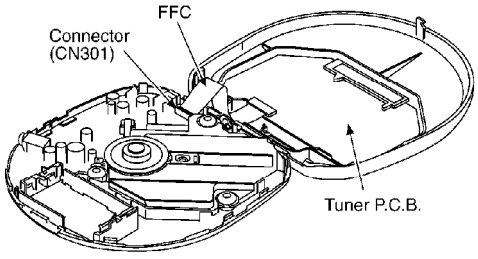
(Step 6)
Remove the cover.



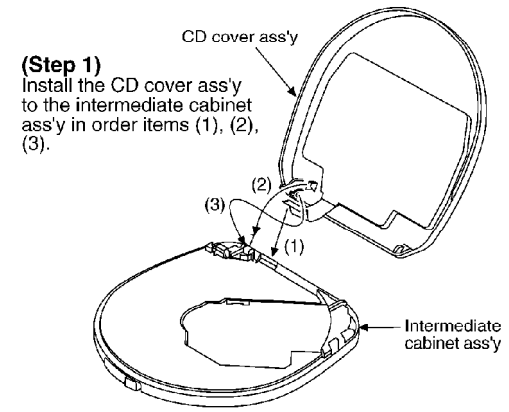
(Step 7)
Remove the Shield plate.

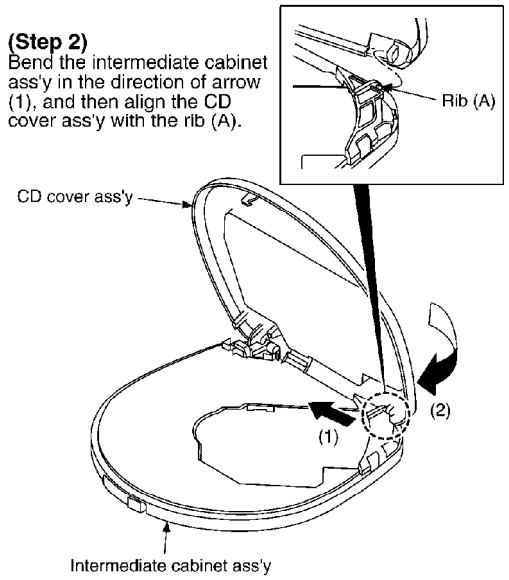
- Check the tuner P.C.B. as shown below.

(Step 8)
Connect the FFC to connector (CN301).



Installation of CD cover ass'y

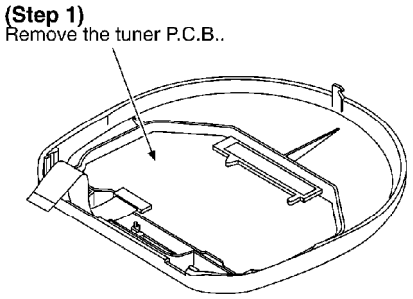


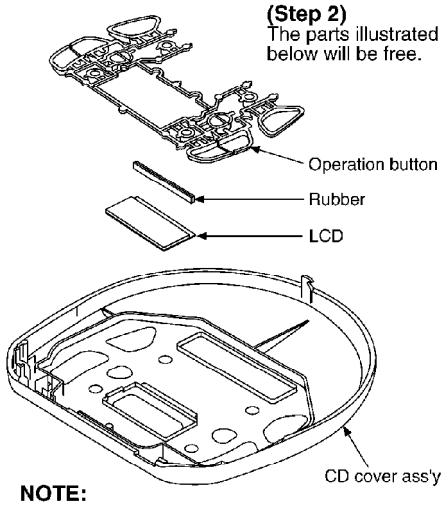

(Step 2)
Bend the intermediate cabinet ass'y in the direction of arrow (1), and then align the CD cover ass'y with the rib (A).
Rib (A)
CD cover ass'y
(2)
(1)
Intermediate cabinet ass'y

5.3. Replacement for the CD cover ass'y and LCD

- Follow the (Step 1) - (Step 5) of item 5.1.1.

- Follow the (Step 1) - (Step 7) of item 5.2.

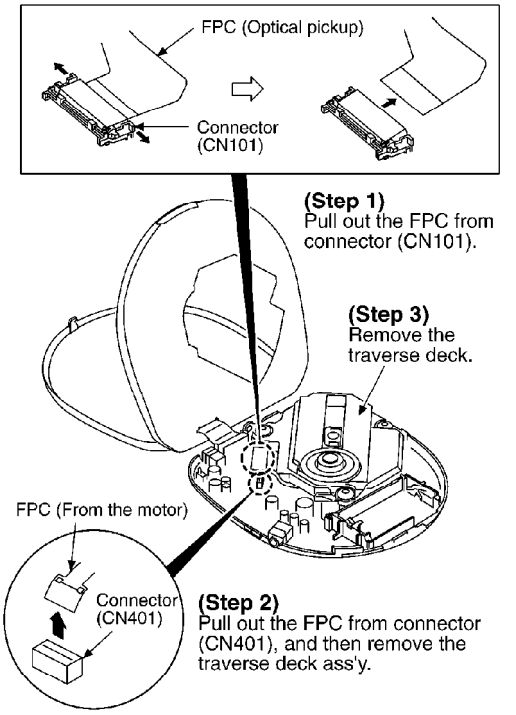




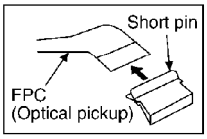
NOTE:
Be careful not to be applied the dust or smudge on the surface rubber.

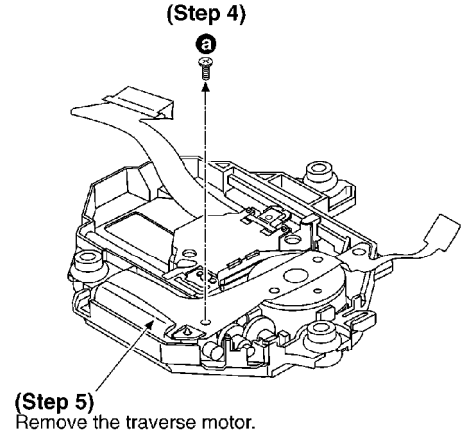
5.4. Replacement for the traverse motor

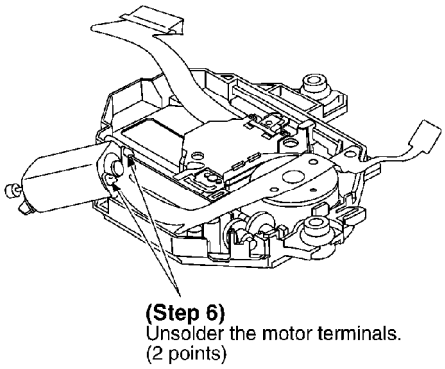
- Follow the (Step 1) - (Step 5) of item 5.1.1.


FPC (Optical pickup)
Connector (CN101)
(Step 1)
Pull out the FPC from connector (CN101).
(Step 3)
Remove the traverse deck.
FPC (From the motor)
Connector (CN401)
(Step 2)
Pull out the FPC from connector (CN401), and then remove the traverse deck ass'y.

NOTE:
Insert a short pin into the traverse deck's FPC.
(Refer to "**Handling Precautions for Traverse Deck**".)



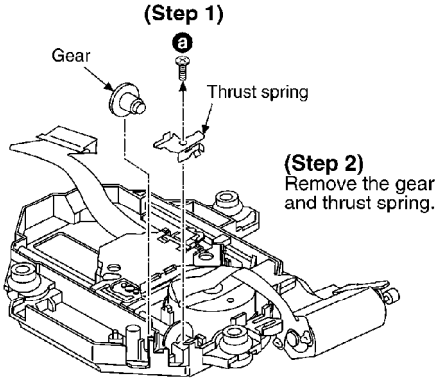


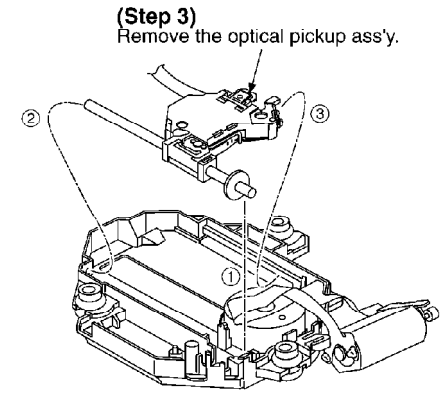


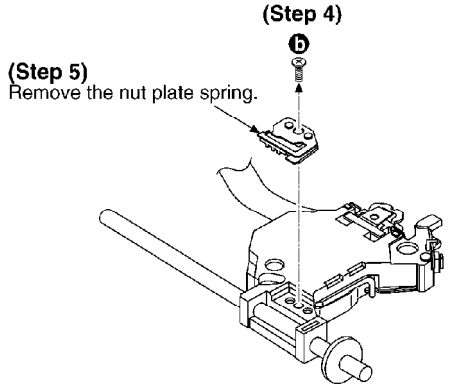
5.5. Replacement for the optical pickup

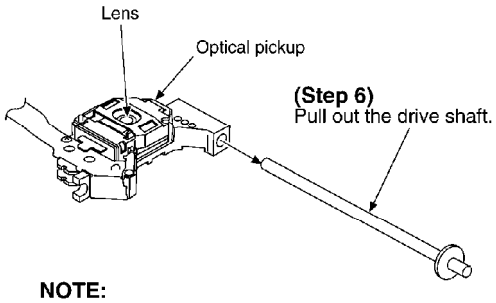
- Follow the (Step 1) - (Step 5) of item 5.1.1.

- Follow the (Step 1) - (Step 5) of item 5.4.





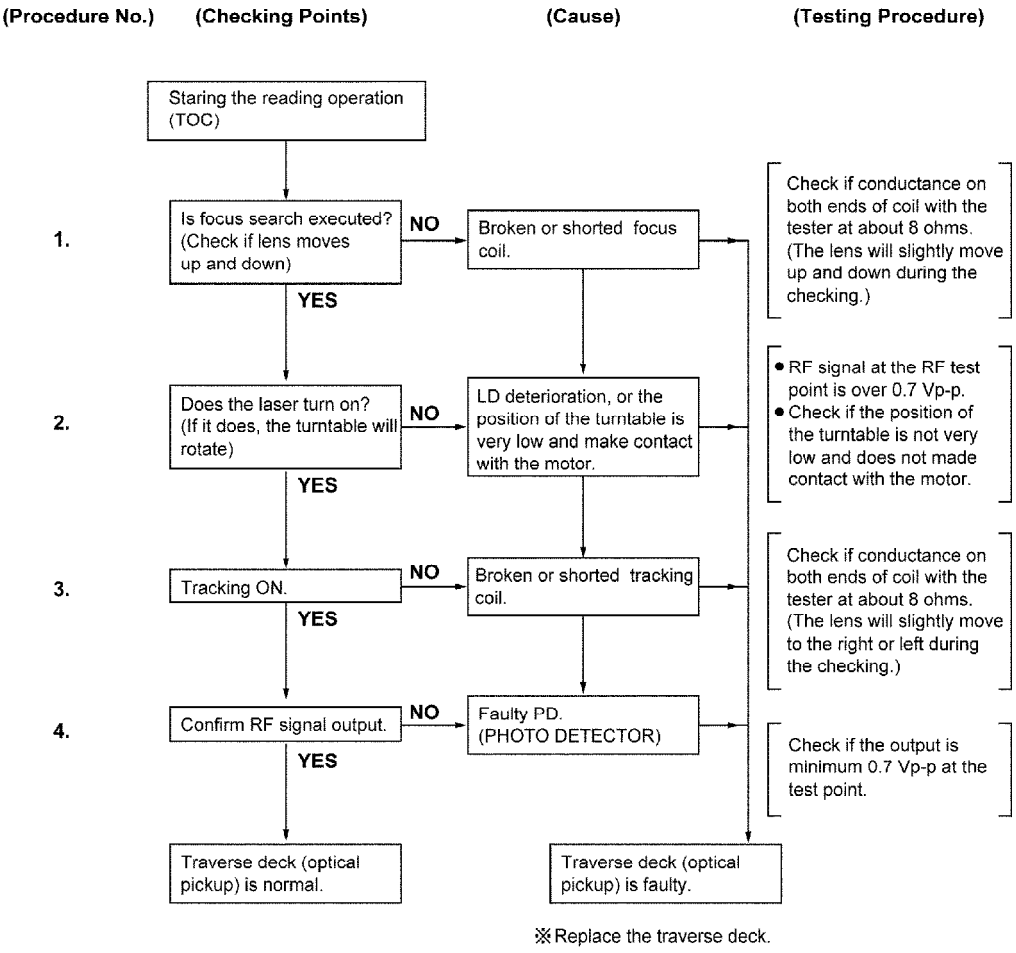




NOTE:
1. Use care to prevent damage the optical pickup, due to the precision construction.
2. Do not apply the grease on the lens of optical pickup.
3. Do not touch the lens of the optical pickup.

6. Checking the Operation Problems on the Traverse Deck (Optical Pickup)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it.
Replace the traverse deck only after the problem is identified.


(Procedure No.)
(Checking Points)
(Cause)
(Testing Procedure)
Staring the reading operation (TOC)
1.
Is focus search executed? (Check if lens moves up and down)
NO
Broken or shorted focus coil.
YES
Check if conductance on both ends of coil with the tester at about 8 ohms. (The lens will slightly move up and down during the checking.)
2.
Does the laser turn on? (If it does, the turntable will rotate)
NO
LD deterioration, or the position of the turntable is very low and make contact with the motor.
YES
● RF signal at the RF test point is over 0.7 Vp-p.
● Check if the position of the turntable is not very low and does not made contact with the motor.
3.
Tracking ON.
NO
Broken or shorted tracking coil.
YES
Check if conductance on both ends of coil with the tester at about 8 ohms. (The lens will slightly move to the right or left during the checking.)
4.
Confirm RF signal output.
NO
Faulty PD. (PHOTO DETECTOR)
YES
Check if the output is minimum 0.7 Vp-p at the test point.
Traverse deck (optical pickup) is normal.
Traverse deck (optical pickup) is faulty.
※Replace the traverse deck.
● Check electrical circuit.
● Check for flaws on disc or if it is warped or not centerd.

■ **Check the operations described below on the traverse deck after replacing it.**

***Checking Skip Search**

1. Play an ordinary musical program disc.

2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

***Checking Manual Search**

1. Play an ordinary musical program disc.

2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

***Checking Playability**

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or

noise occurs.

2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

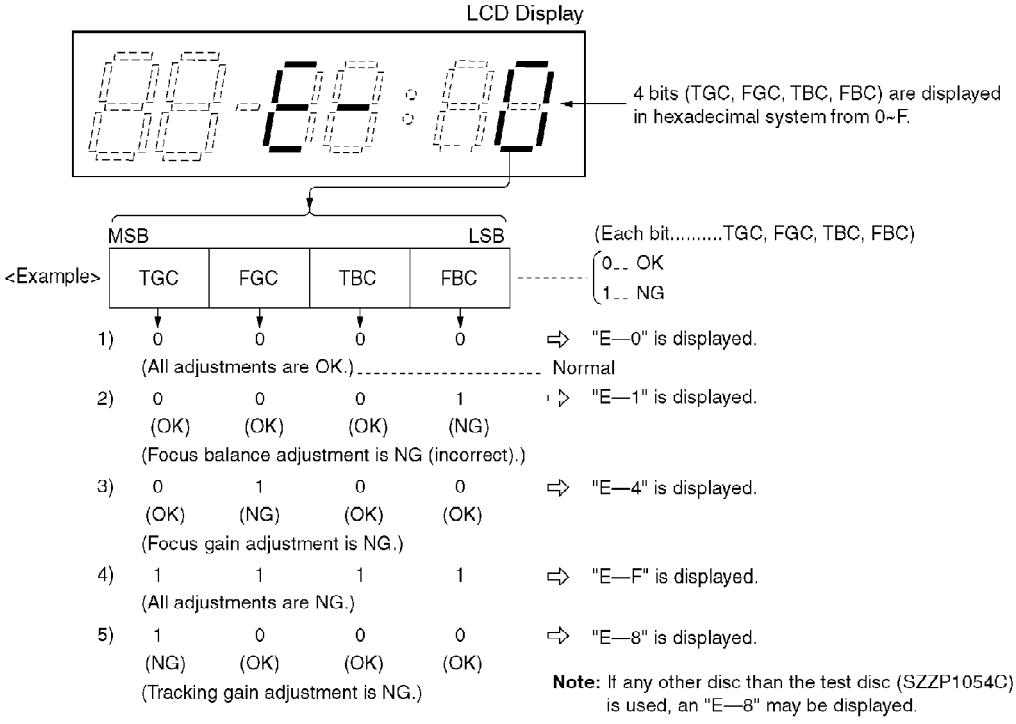
7. Automatic Adjustment Results Display Function (Self-check Function)

On this unit (SL-SX289V), each automatic adjustment results are displayed on the LCD. This function is convenient to check or identify which automatic adjustment circuit is incorrect. The followings are the contents of the automaticadjustment result displays (self-check function). (Using the new Servo IC: MN662786SB)

7.1. How to display automatic adjustment results

1. Load the test disc (SZZP1054C).
2. Press the ◀◀ (SKIP/SEARCH) and ▶▶ (SKIP/SEARCH) Buttons simultaneously and hold them, and additionallypress the ▶❚❚ (PLAY/PAUSE) Button.
3. Press the ■ (OPR OFF) Button once.
4. An automatic adjustment result is displayed on the LCD.

7.2. Display of automatic adjustment results (self-check function)


LCD Display
4 bits (TGC, FGC, TBC, FBC) are displayed in hexadecimal system from 0~F.
MSB
LSB
(Each bit.....TGC, FGC, TBC, FBC)
0 OK
1 NG
<Example>
TGC
FGC
TBC
FBC
1) 0 0 0 0 ⇨ "E—0" is displayed.
(All adjustments are OK.) Normal
2) 0 0 0 1 ⇨ "E—1" is displayed.
(OK) (OK) (OK) (NG)
(Focus balance adjustment is NG (incorrect).)
3) 0 1 0 0 ⇨ "E—4" is displayed.
(OK) (NG) (OK) (OK)
(Focus gain adjustment is NG.)
4) 1 1 1 1 ⇨ "E—F" is displayed.
(All adjustments are NG.)
5) 1 0 0 0 ⇨ "E—8" is displayed.
(NG) (OK) (OK) (OK)
(Tracking gain adjustment is NG.)
Note: If any other disc than the test disc (SZZP1054C) is used, an "E—8" may be displayed.

<Example>
Follow the below steps when “E-1” is displayed.
(Cause: Focus balance (FBC) is set beyond the limit.)

■ **Check if**

1. **the waveform or voltage of the focus servo circuit is correct. (check the waveform or voltage.)**
2. **the optical pickup returns to the normal state by exchanging the traverse deck.**

Follow the below steps when “E-4” is displayed.
(Cause: Focus gain (FGC) is set beyond the limit.)

■ **Check if**

1. **the waveform or voltage of the focus servo circuit is correct. (check the waveform or voltage.)**
2. **the focus coil of the optical pickup is correct (around 15 ohms).**
3. **the optical pickup returns to the normal state by exchanging the traverse deck.**

Follow the below steps when “E-F” is displayed.
(Cause: All adjustments (TGC, FGC, TBC, FBC) are set beyond the limit.)

■ **Check if**

1. **the optical pickup returns to the normal state by exchanging the traverse deck.**
2. **the waveform or voltage of the servo IC’s are correct. (check the waveform or voltage.)**

Note:
It is not always necessary to exchange the traverse deck when an error message is displayed. Be sure to check if the circuit is defective or not before exchanging the traverse deck.

Note:
If any other disc than the test disc (SZZP1054C) is used, an error message may be displayed. This is not a malfunction.

8. Measurements and Adjustments

Warning:

This product uses a laser diode. Refer to caution statements.

8.1. Tuner Block Adjustments

Preparation for Adjustment

Connect lead wire for test points [TP1] and [TP2]. (Refer to Fig. 7)

Note:

Please refer to the printed circuit board and wiring connection diagram for test point location.

Measurement Condition

1. Set volume control to maximum.
2. Release the hold state.
3. Set power source Voltage to 4.5V DC.(AC adaptor IN)

Control Positions and Equipment Used

1. Signal generator (AM/FM)
2. Oscilloscope
3. Frequency counter
4. V.V. Meter

Tuner section

BAND	SIGNAL GENERATOR		DISPLAY SETTING	OUTPUT	ADJUSTMENT POINT	PROCEDU
	CONNECTION	FREQUENCY				
FM	[TP1] → (+) [TP2] → (-)	90.1 MHz	90.1 MHz	Headphones jack (16 Ω) (Refer to Fig. 6)	VR1 (Refer to Fig. 5)	Adjust VR1 for n output.
AM	Fashion a loop of several tuns of wire and radiate a signal into the loop antenna of receiver.	600 kHz	600 kHz	Headphones jack (16 Ω) (Refer to Fig. 6)	L202 (Refer to Fig. 5)	Adjust L202 for n output.

■ **Adjustment Point**

Fig. 5

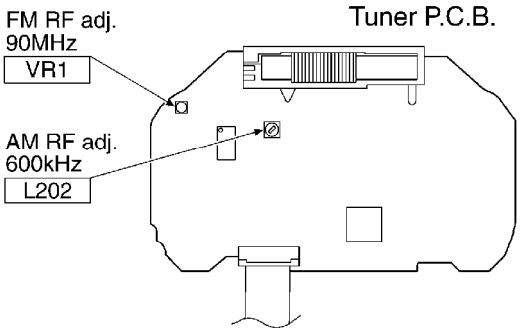


Fig. 6

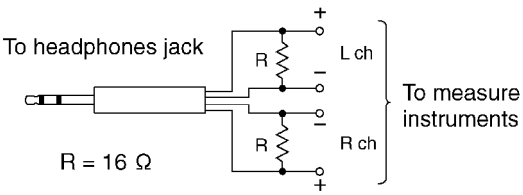
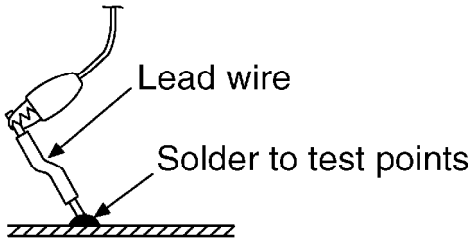


Fig. 7



9. Outline of 40-Second Sound Keeper Technique Used for Prevention of Sound from Skipping

9.1. Conventional Shock proofing Technique

Input information read out of the CD at double speed is demodulated, stored in the memory, and while sound-marking signal is supplied at normal speed from the memory to the D/A converter, the residual data is accumulated in the memory.
If reaccess to the break point is accomplished before the memory becomes empty, apparent playback sound is entirely kept free from breaking even when information pauses due to vibration, etc. It was necessary to use the 16M bit memory for securingthe accumulation time of about 40 seconds.

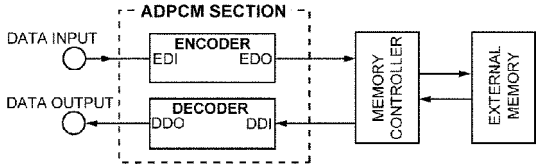
9.2. Compression-shock proofing [Outline]

Fig. 8 is a block diagram showing the compression-shock proofing mechanism, the difference of which from the conventional mechanism is as follows: Input information read out at double

speed undergoesdata compression (16 bits -- 4 bits) by the encoder in the ADPCM (Adaptive Difference PCM) and stored in the external memory; the stored memory information undergoes data elongation (4 bits -- 16 bits) by the decoder in the ADPCM and supplied at normalspeed to the D/A converter.
The data compression technique has conduced to reduction of required memory capacity from 16M bits to 4M bits for securing the accumulation time equivalent to the conventional.

Fig. 8

All-inclusive Block Diagram



10. Display of Self-Diagnostic Function

This model is equipped with a self-diagnosis function and shows, when necessary, the following indication in the LCD section of the set.

LCD display

(Press PLAY and STOP button. After 15 seconds,it is displayed for 2 seconds.)

“F15”---This indication appears when the Down switch fails to turn ON since the magnetic head fails to move up/down normally (Due to trouble of the magnetic head or trouble of the magnetic head up/down motor)or the magnetic head P.C.B. is out of position or a foreign matter has mixed in or for some other reason.
In such a case, check the peripheral parts of the magnetic head, repair or replace defective parts with normal ones.

11. Schematic Diagram Notes

11.1. Type Illustration of IC's, Transistors and Diodes

11.2. Schematic Diagram Notes

Notes:

S6:

Tuner on / band select switch (RADIO / BAND).

S7:

Play / Pause switch (▶❚❚).

S201:

Laser ON / OFF switch.

S202:

Rest detection switch.

S301:

Monaural / stereo switch (FM MODE MONO / ST).

S302:

Sensitivity control, play mode switch (FM RECEPT_CITY / NOR, MODE).

S303:

S-XBS switch (S-XBS).

S304, 311:

Tuning / skip / search switches (⏮ / ◀◀ –, ▶▶ / ⏭ +)

S305, 310:

Headphone volume control switches (VOL+, VOL-).

S308:

Memory / recall switch (MEMORY / RECALL).

S310:

Hold switch (HOLD).

S312:

Stop / operation off switch (■, OPR OFF).

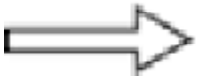
- Components identified by ⚠ mark have special characteristics important for safety.

- When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

- The supply part number is described alone in the replacement parts.

- Signal line

- : Positive voltage line.

-  : FM signal line.

- : FM osc signal line.

- : AM osc signal line.

- : FM/AM Vcap signal line.
- : CD playback signal line.
- : MAIN signal line.
- The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack). Accordingly, there may arise some errors in the voltage valuesand waveforms depending upon the internal impedance of the tester or measuring unit.

  Measurement conditions:

  *( ).....CD playback mode (Test disc 1kHz, L+R, 0dB)

  *No mark.....CD stop mode

Caution!!

- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

12. Schematic Diagram

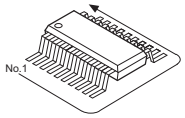
13. Printed Circuit Board and Wiring Connection Diagram

14. Block Diagram

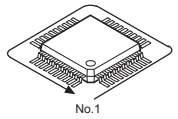
15. Terminal Function of IC's

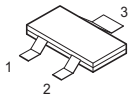
15.1. IC301A(C2FAEB000004): System Control/LCD Drive

C1BB00000562	30PIN
NJM2171RTE1	10PIN
C0ZBZ0000515	16PIN
AN8885SBE1V	28PIN



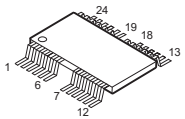
C2FAEB000004	64PIN
MN662786SB	80PIN
AN4831FHQEBV	48PIN
C2BBFD000295	80PIN



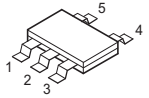


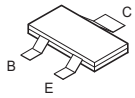
XC61CN1602MR
C0CBAAC00046
C0EBD0000066

C3ABMB000027



C0ZBZ0000506



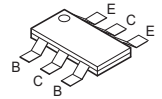


2SB709ATX
2SB815B7TX
2SB1295-6-TB
2SC3931CTX
2SC3935TX
2SC4081STX
2SC4617STL

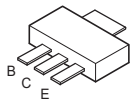
2SD1819ASTX
B1GDCFQA0003
DTA114YUA106
DTA144EUA106
DTC125TUA106
DTC143EUA106
DTC144TUA106

UN5114TX
UN5115TX
UN5213TX
UN5214TX
UN5215TX

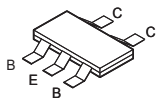
XN0F26200L



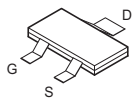
2SB1132T100
B1ABMD000004



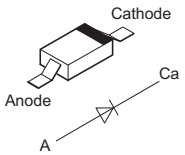
FMG2T148



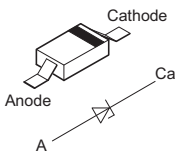
2SK1067-4-TL
2SK1958T1



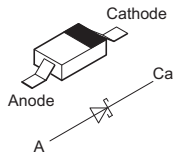
MA111TX



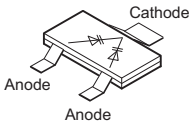
MA8120MTX



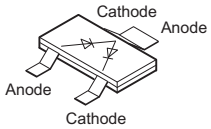
MA728TX



KV1450TL3-4
KV1610STL2-0



MA147TX

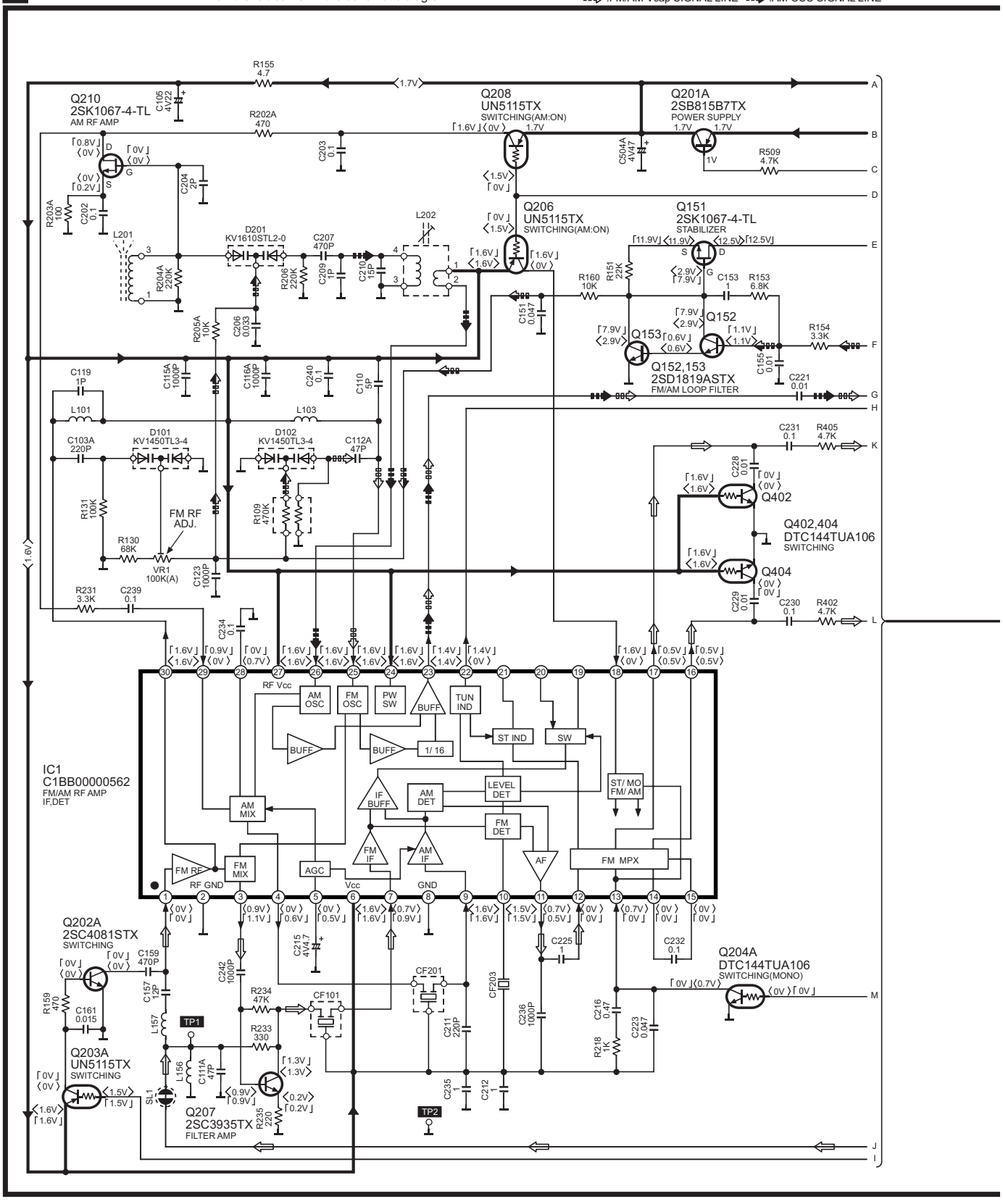


SCHEMATIC DIAGRAM–1

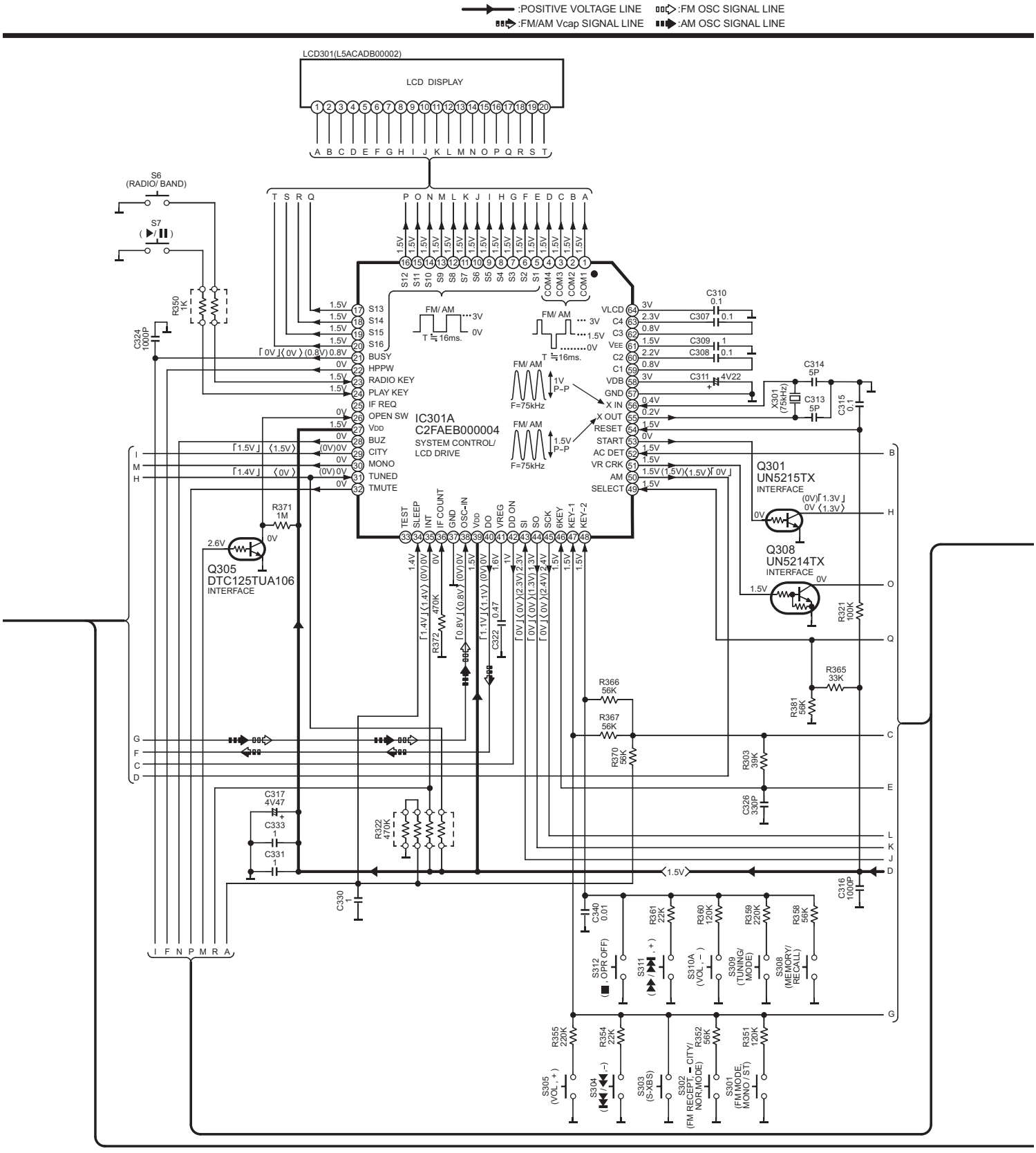
NOTE:
The number which noted at the connectors on the schematic diagram as "SCHEMATIC DIAGRAM-1" or "SCHEMATIC DIAGRAM-2" indicates the schematic diagram serial number located on the left corner in the schematic diagram.

:POSITIVE VOLTAGE LINE
:FM SIGNAL LINE
:FM OSC SIGNAL LINE
:FM/AM Vcap SIGNAL LINE
:AM OSC SIGNAL LINE

A TUNER CIRCUIT



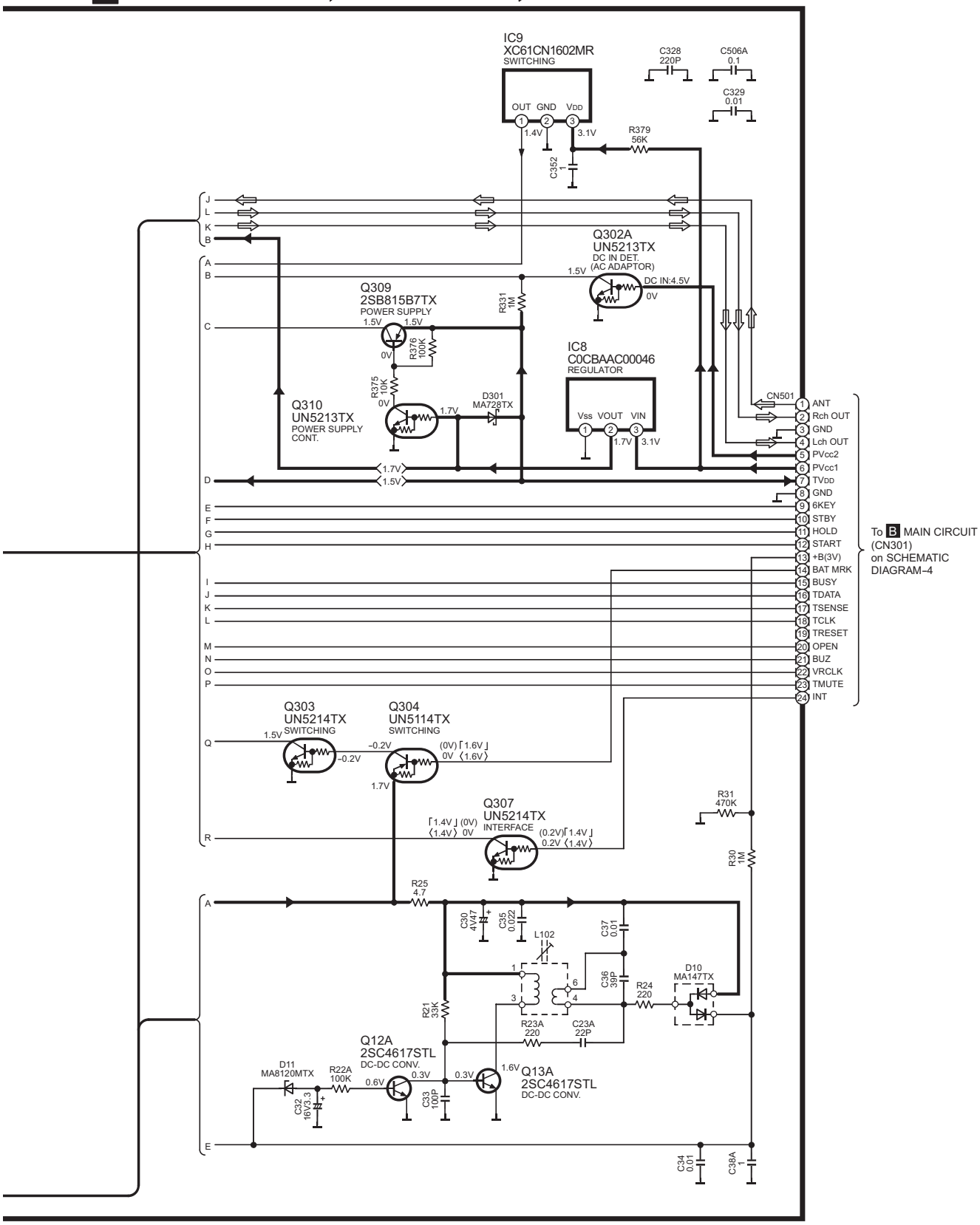
SCHEMATIC DIAGRAM-2



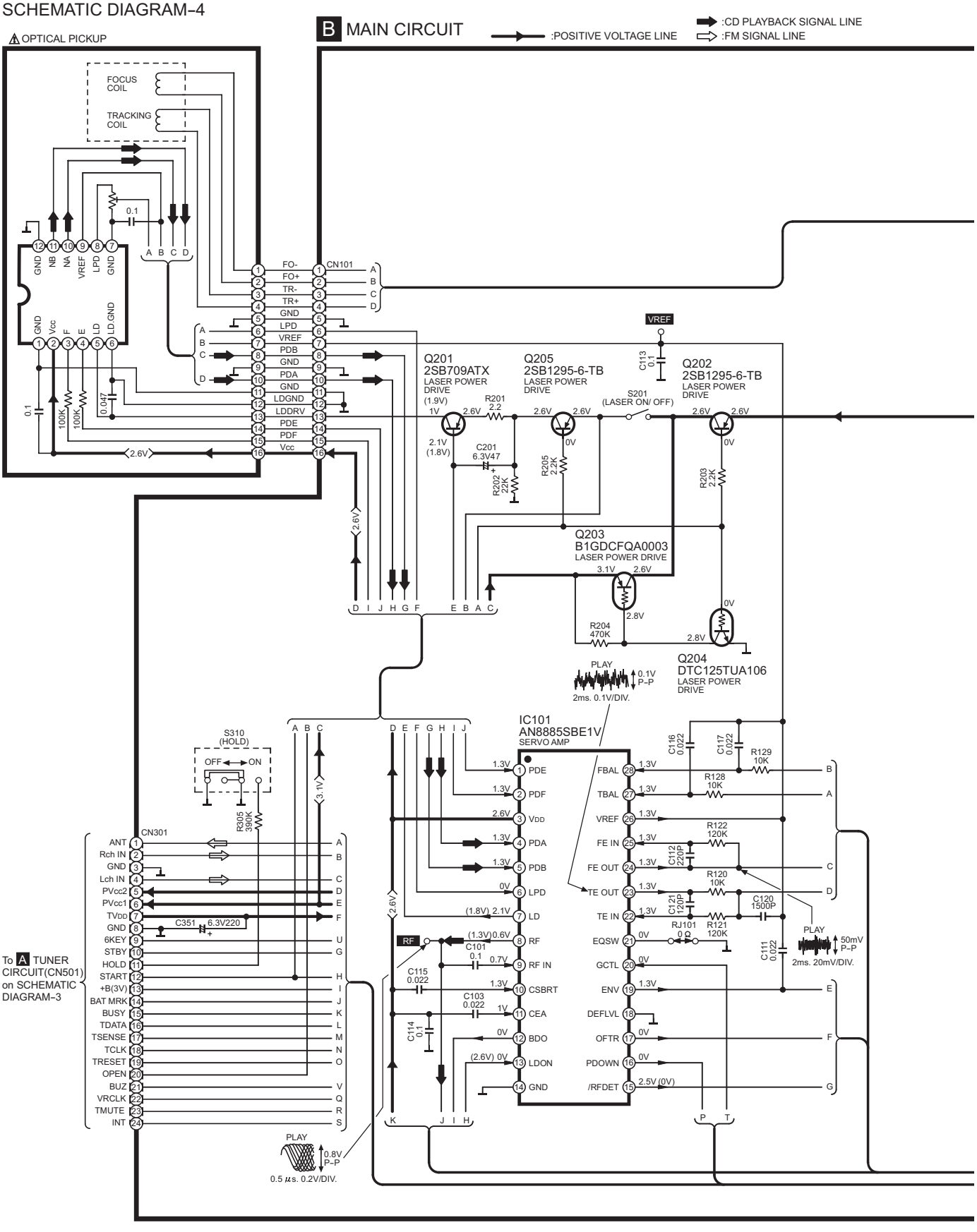
SCHEMATIC DIAGRAM–3

A TUNER CIRCUIT

:POSITIVE VOLTAGE LINE :FM SIGNAL LINE

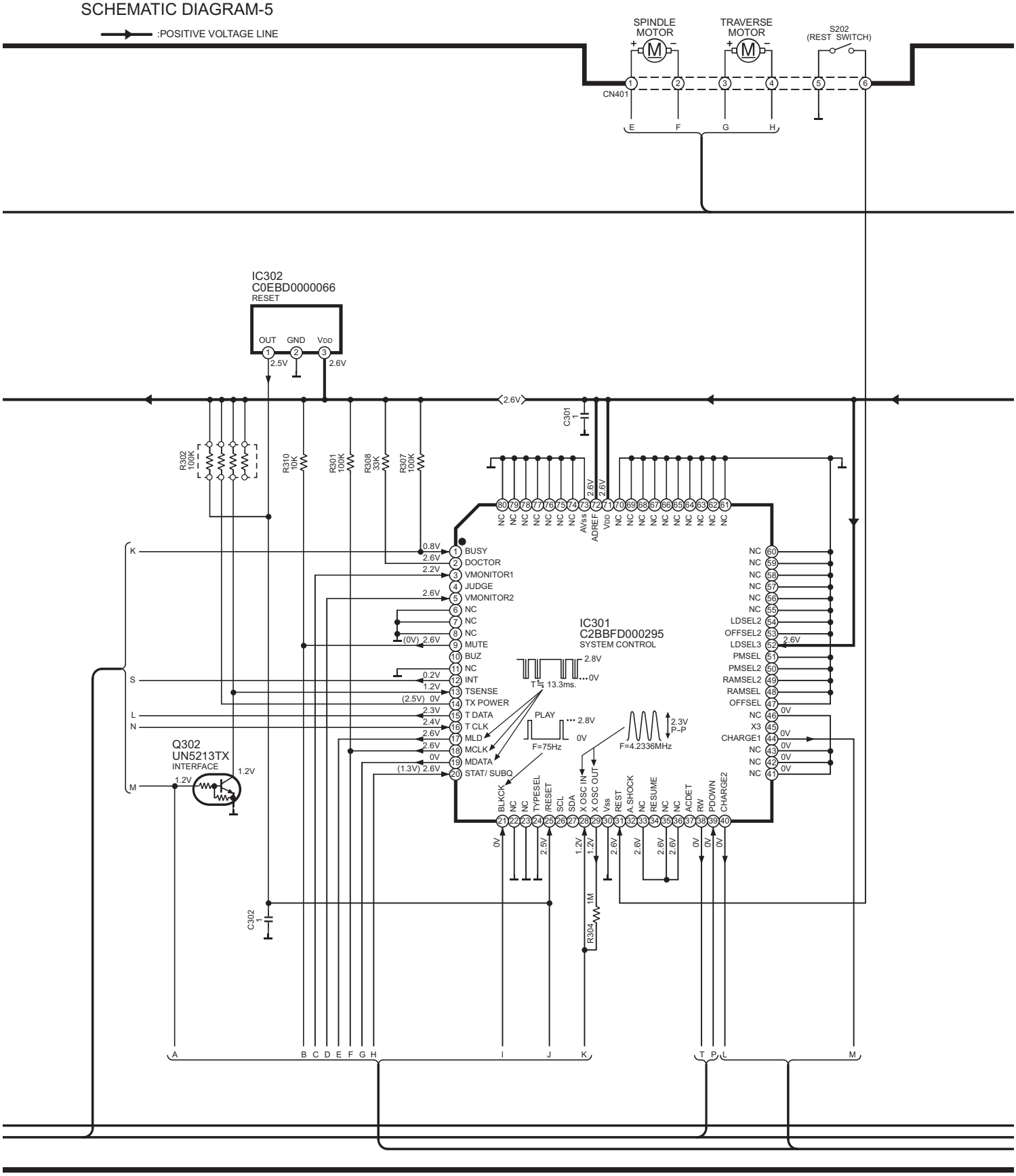


SCHEMATIC DIAGRAM–4



SCHEMATIC DIAGRAM-5

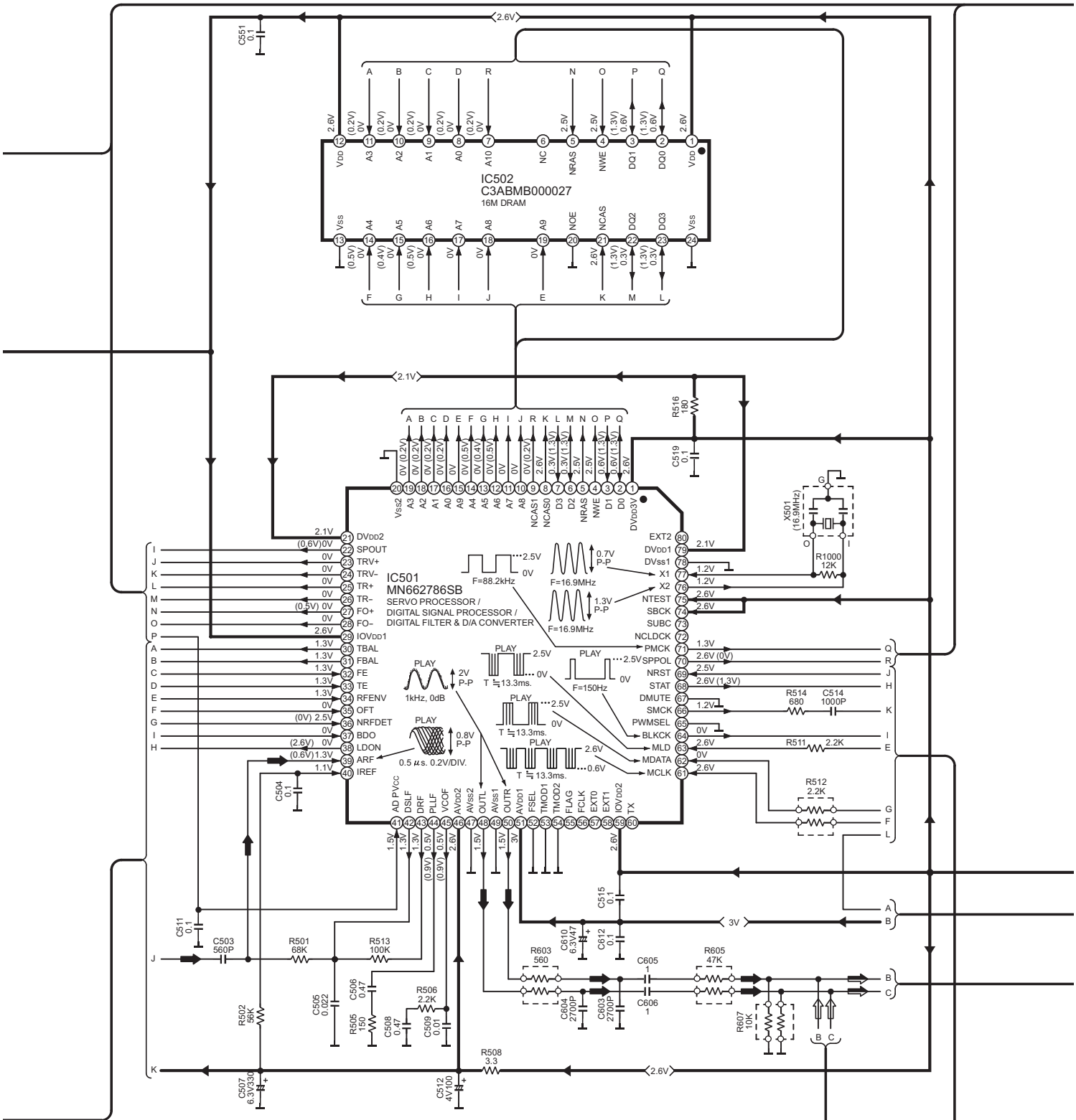
:POSITIVE VOLTAGE LINE



SCHEMATIC DIAGRAM–6

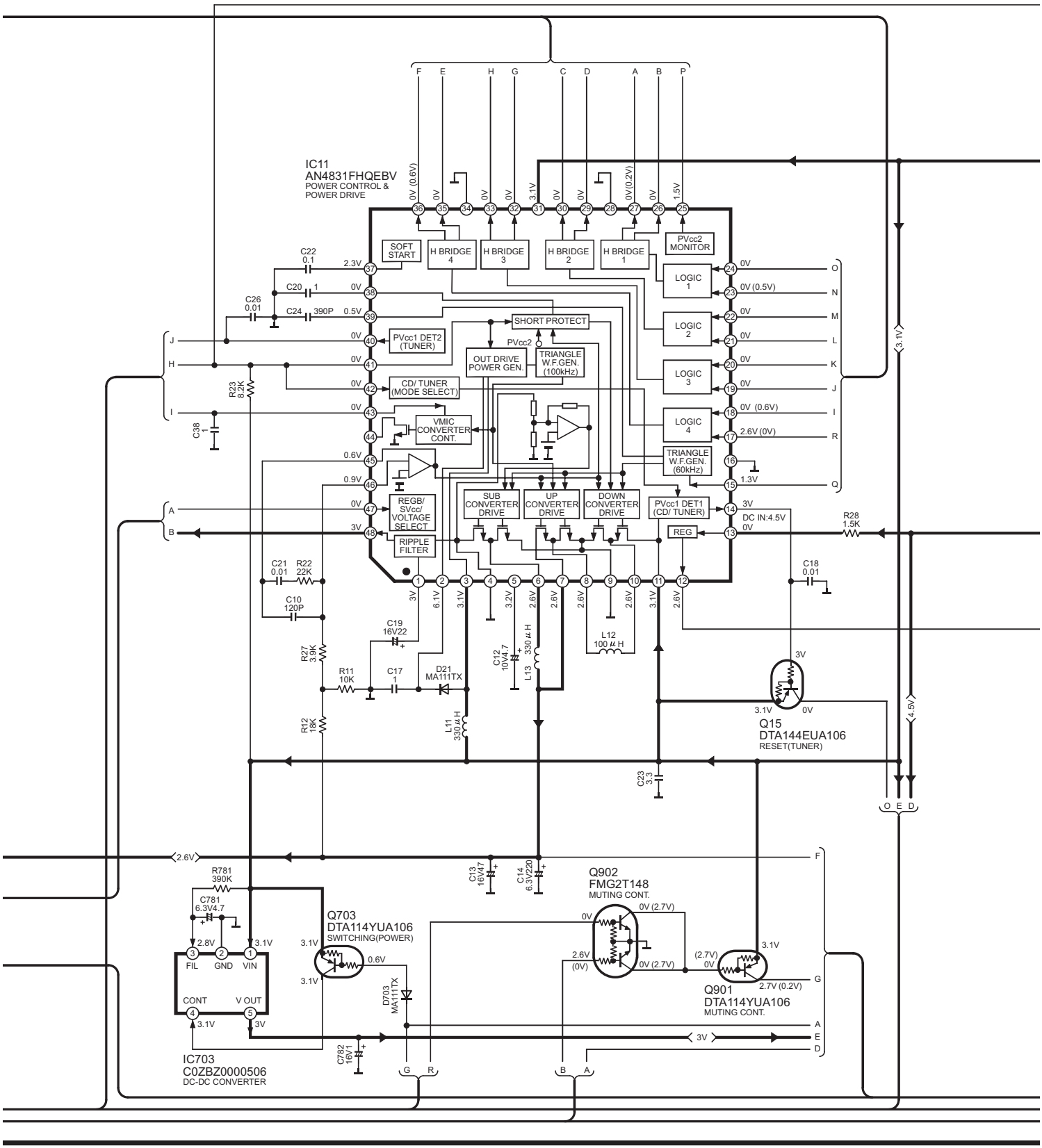
B MAIN CIRCUIT

:POSITIVE VOLTAGE LINE :CD PLAYBACK SIGNAL LINE :FM SIGNAL LINE :MAIN SIGNAL LINE



SCHEMATIC DIAGRAM–7

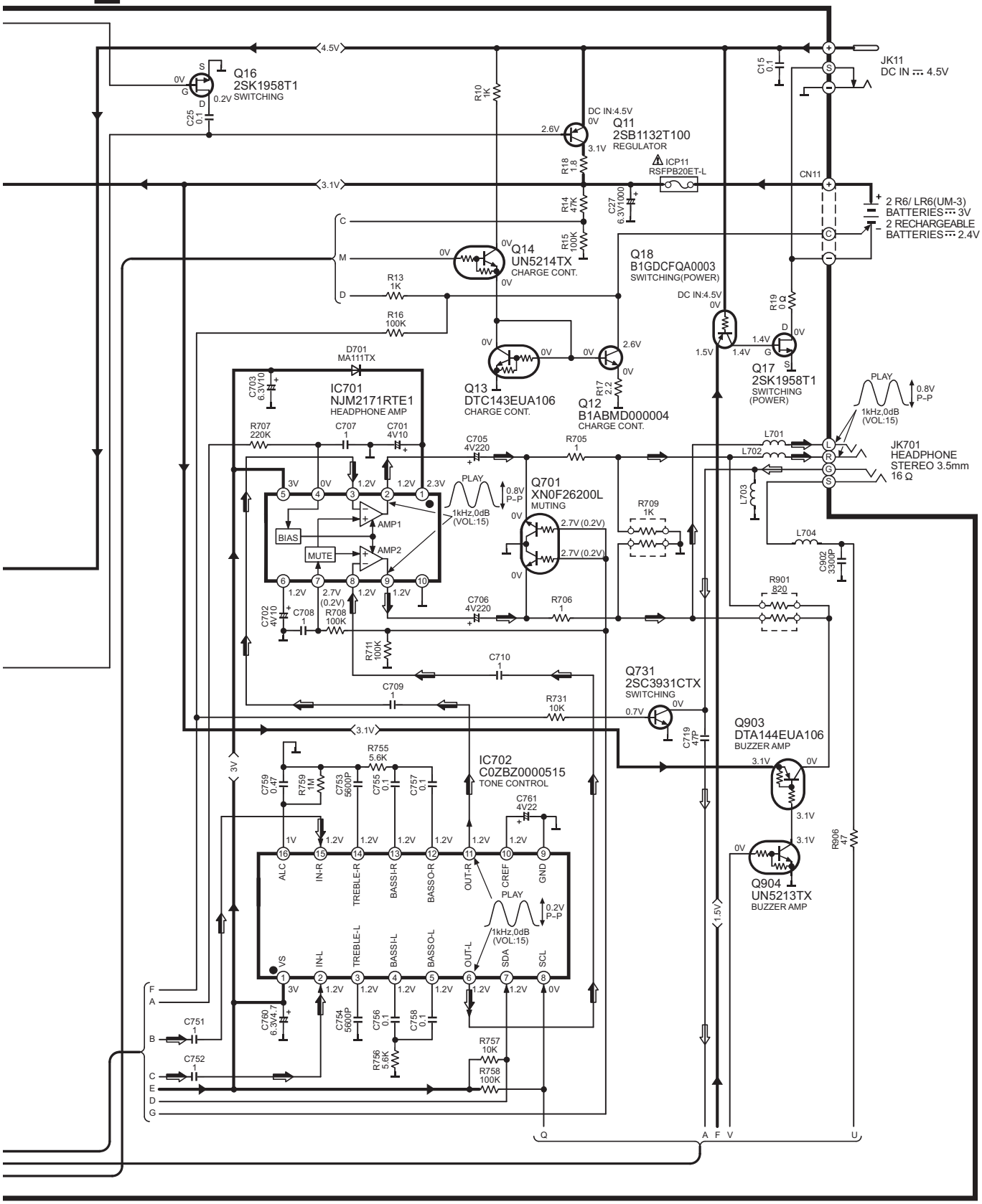
:POSITIVE VOLTAGE LINE



SCHEMATIC DIAGRAM–8

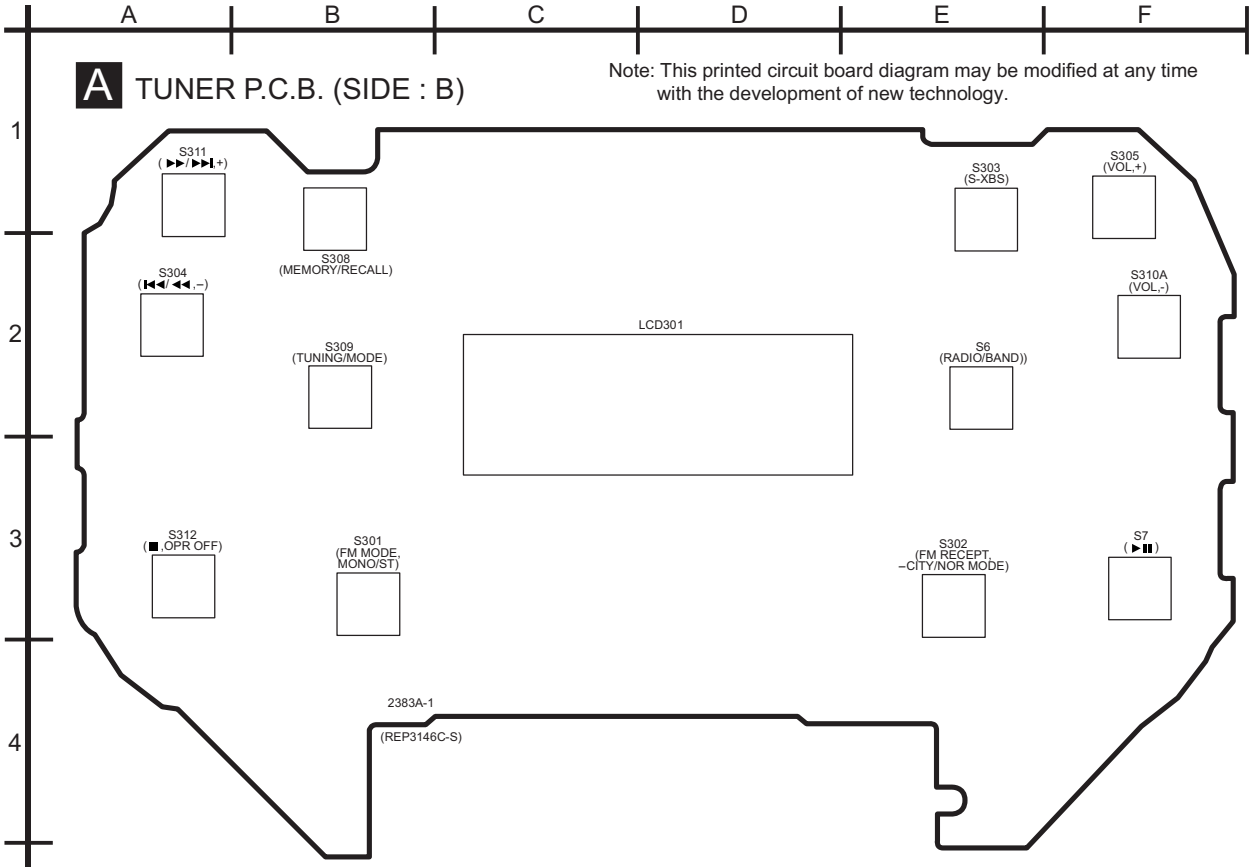
B MAIN CIRCUIT

:POSITIVE VOLTAGE LINE :FM SIGNAL LINE :MAIN SIGNAL LINE

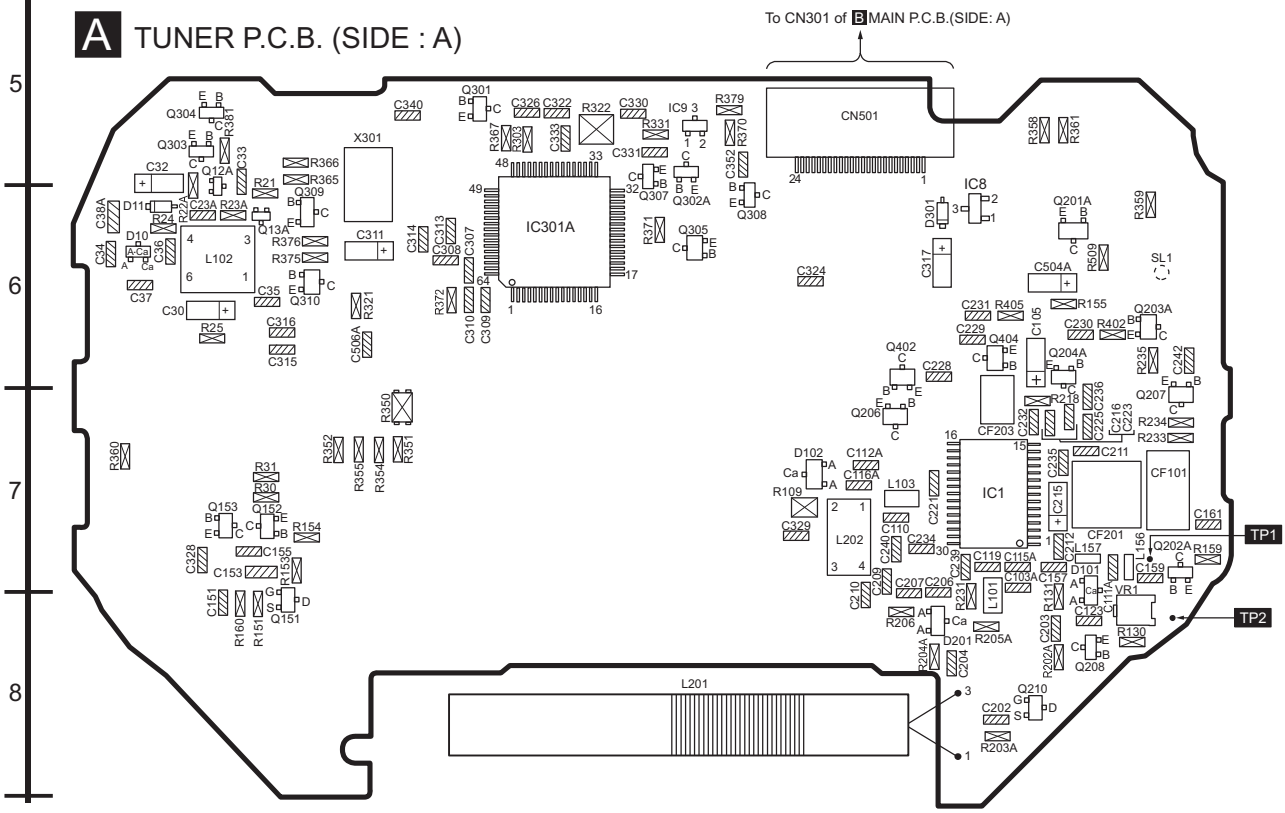


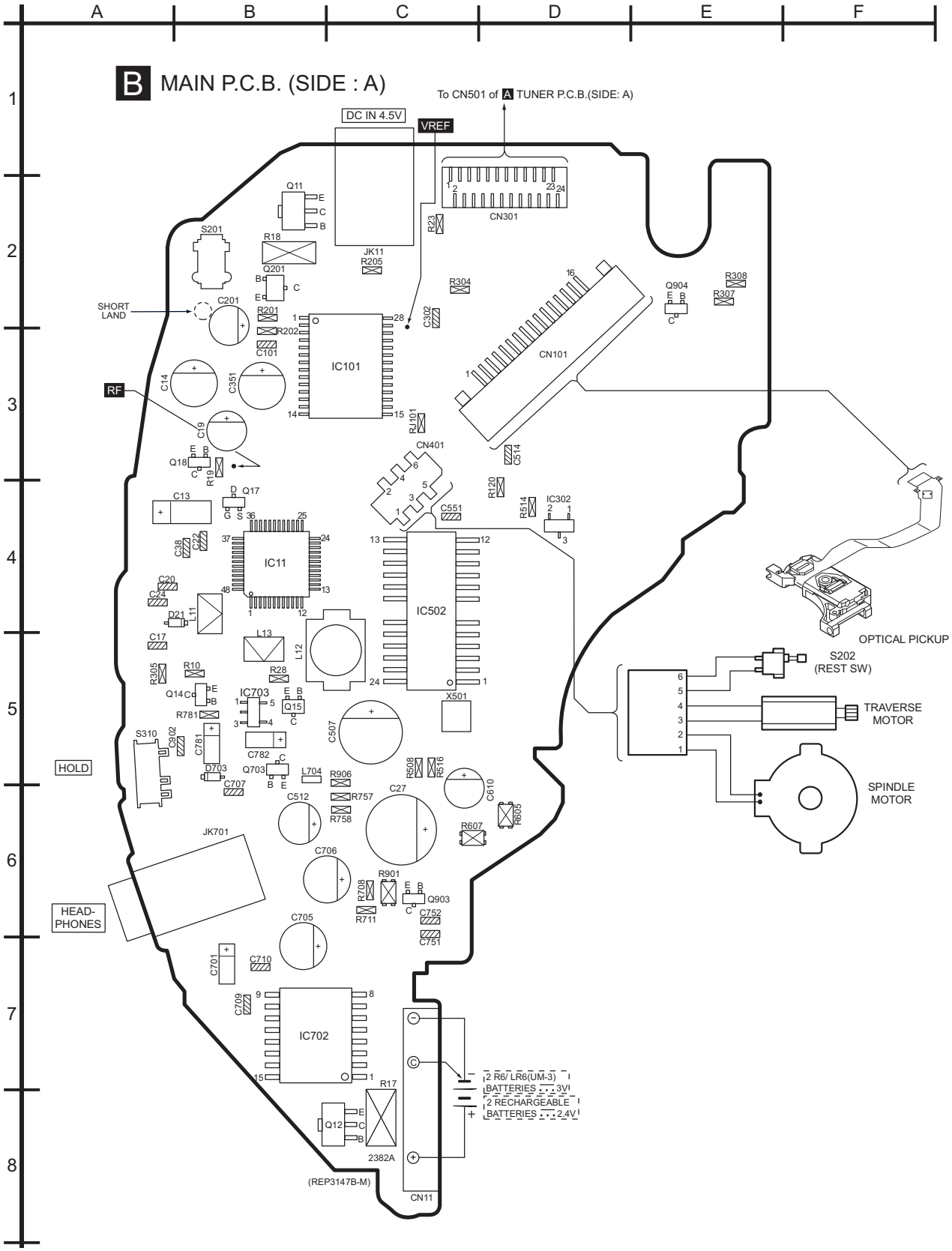
A TUNER P.C.B. (SIDE : B)

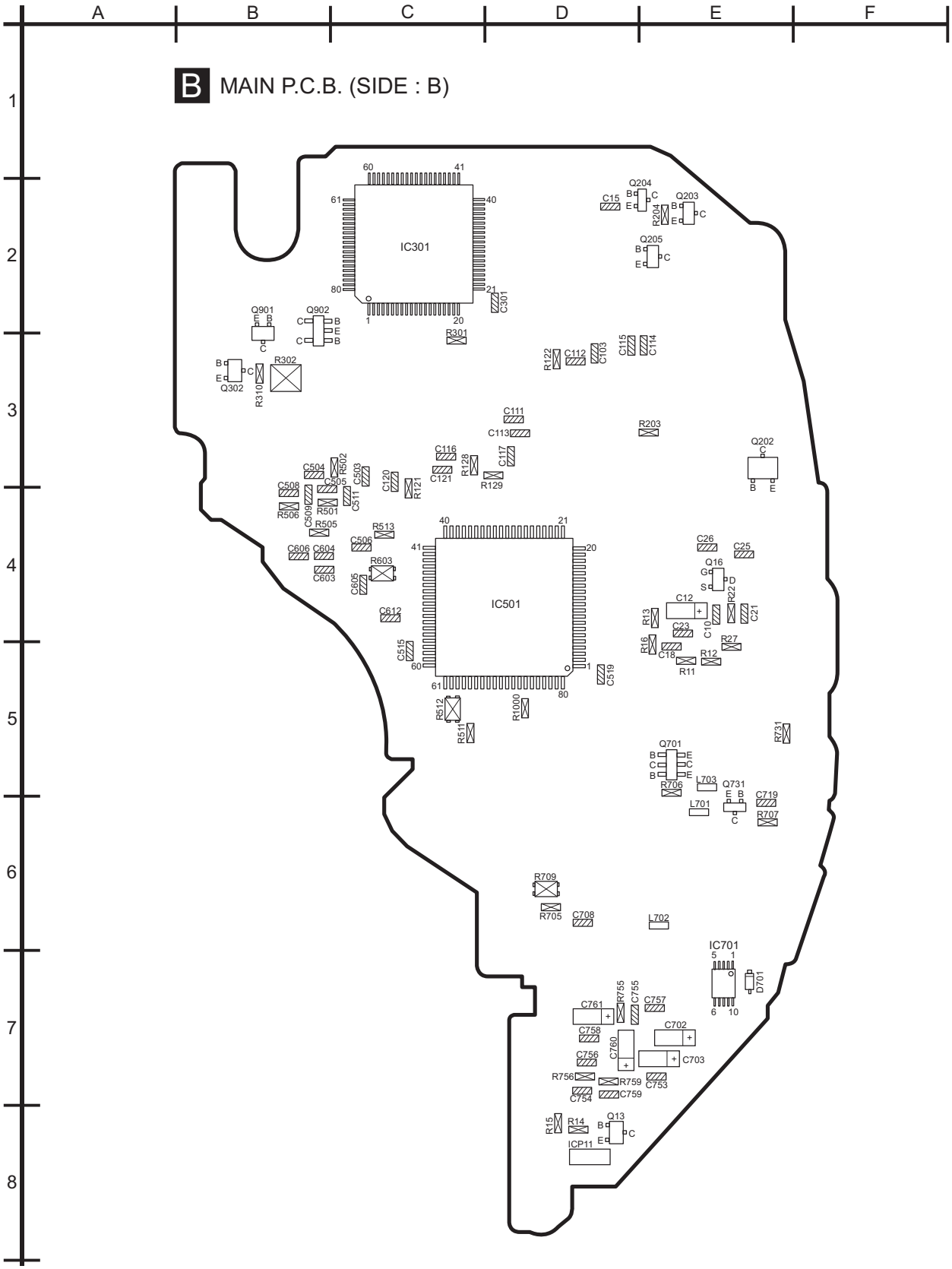
Note: This printed circuit board diagram may be modified at any time with the development of new technology.

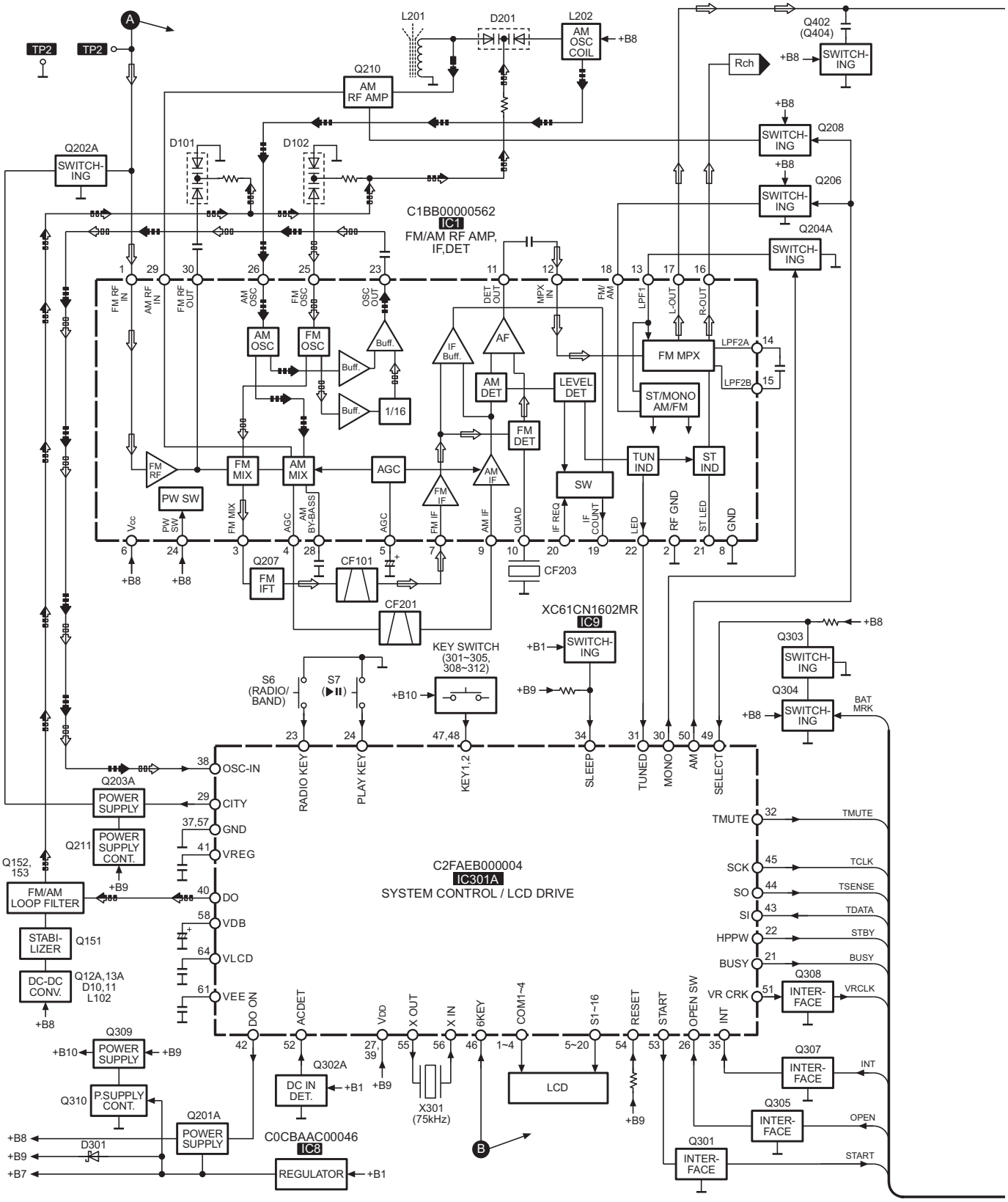


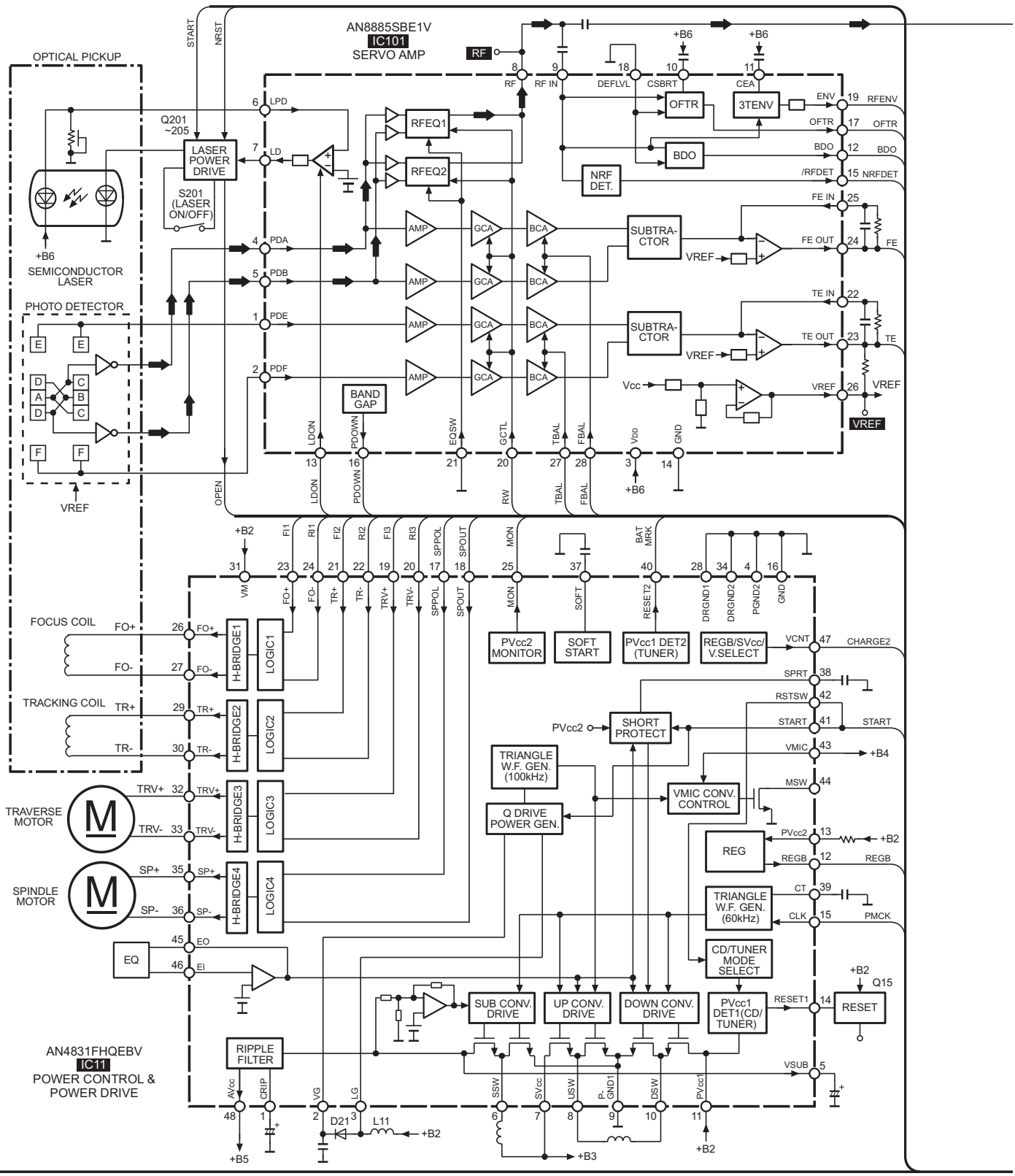
A TUNER P.C.B. (SIDE : A)

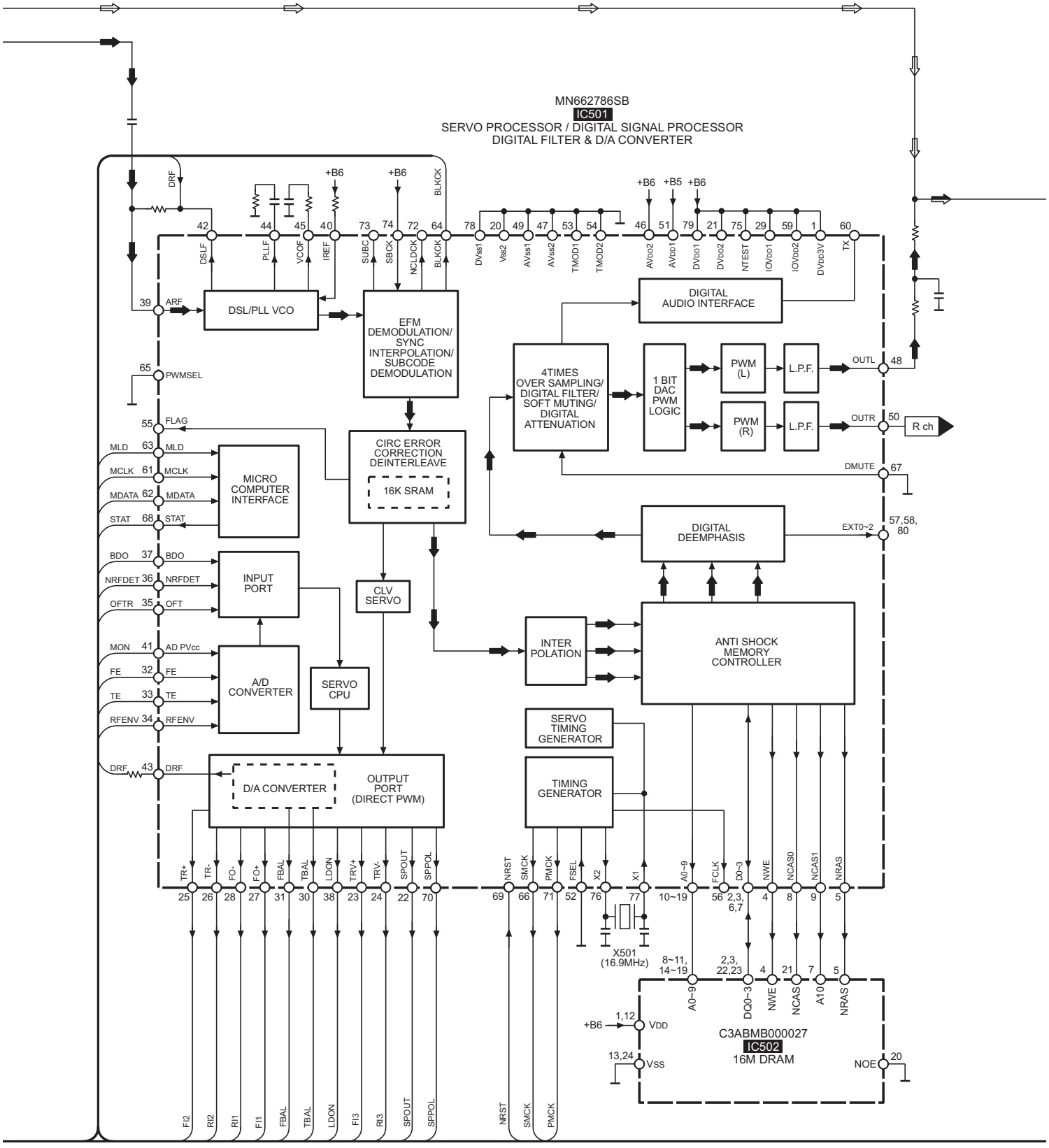


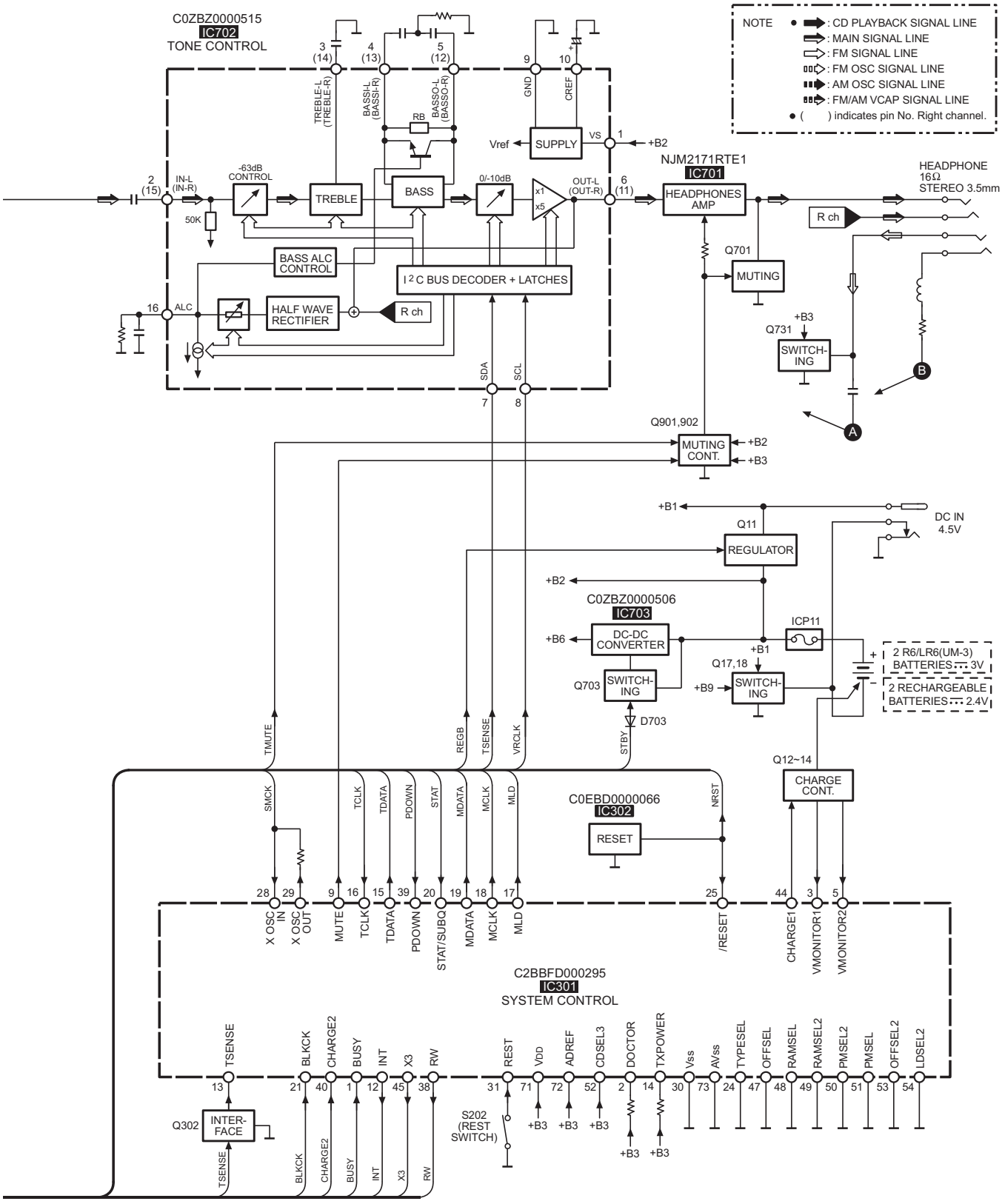

B MAIN P.C.B. (SIDE : A)
To CN501 of A TUNER P.C.B.(SIDE: A)
DC IN 4.5V
VREF
CN301
JK11
R205
R23
Q11
S201
R18
Q201
SHORT LAND
C201
R201
R202
C101
IC101
C302
R304
CN101
Q904
R308
R307
RF
C14
C351
C19
Q18
R19
RJ101
C514
CN401
R120
C551
R514
IC302
C13
Q17
IC11
C38
C22
C20
C24
D21
L11
C17
L13
L12
R28
R10
R305
IC502
X501
OPTICAL PICKUP
S202
(REST SW)
TRAVERSE MOTOR
SPINDLE MOTOR
Q14
IC703
Q15
R781
C782
C781
C507
S310
C902
HOLD
D703
Q703
C707
L704
R906
R757
R758
C27
C512
R508
R516
C610
R605
R607
JK701
HEAD-PHONES
C706
R901
R708
R711
Q903
C752
C751
C705
C701
C710
C709
IC702
R17
Q12
2382A
(REP3147B-M)
CN11
2 R6/ LR6(UM-3) BATTERIES : 3V
2 RECHARGEABLE BATTERIES : 2.4V


A
B
C
D
E
F
1
2
3
4
5
6
7
8
B MAIN P.C.B. (SIDE : B)
IC301
IC501
IC701
Q204
Q203
Q205
Q901
Q902
Q302
Q202
Q16
Q701
Q731
Q13
ICP11
C15
C301
C111
C113
C112
C103
C115
C114
C116
C117
C121
C120
C504
C502
C503
C505
C511
C508
C509
C506
C606
C604
C603
C605
C612
C515
C519
C26
C25
C12
C10
C23
C18
C21
C719
L703
L701
L702
C708
C761
C758
C756
C760
C757
C755
C702
C703
C753
C754
C759
R301
R302
R310
R122
R203
R204
R128
R129
R121
R501
R502
R506
R505
R513
R603
R512
R511
R1000
R22
R13
R16
R27
R12
R11
R731
R706
R707
R709
R705
R755
R756
R759
R15
R14
D701


A
TP2
TP2
L201
D201
L202
AM OSC COIL
+B8
Q210
AM RF AMP
Q402 (Q404)
Rch
+B8
SWITCH-ING
+B8
SWITCH-ING
Q208
+B8
SWITCH-ING
Q206
Q204A
SWITCH-ING
Q202A
SWITCH-ING
D101
D102
C1BB00000562
IC1
FM/AM RF AMP, IF,DET
FM RF IN
AM RF IN
FM RF OUT
AM OSC
FM OSC
OSC OUT
DET OUT
MPX IN
FM/ AM
LPF1
L-OUT
R-OUT
AM OSC
FM OSC
Buff.
Buff.
Buff.
1/16
IF Buff.
AF
AM DET
LEVEL DET
FM DET
FM MPX
LPF2A
LPF2B
ST/MONO AM/FM
FM RF.
FM MIX
AM MIX
AGC
AM IF
FM IF
SW
TUN IND
ST IND
PW SW
Vcc
PW SW
FM MIX
AGC
AM BY-BASS
AGC
FM IF
AM IF
QUAD
IF REQ
IF COUNT
LED
RF GND
ST LED
GND
+B8
+B8
Q207
FM IFT
CF101
CF203
CF201
XC61CN1602MR
IC9
KEY SWITCH (301~305, 308~312)
S6 (RADIO/ BAND)
S7 (▶II)
+B10
+B1
SWITCH-ING
+B9
Q303
SWITCH-ING
Q304
SWITCH-ING
+B8
BAT MRK
RADIO KEY
PLAY KEY
KEY1,2
SLEEP
TUNED
MONO
AM
SELECT
OSC-IN
Q203A
POWER SUPPLY
CITY
GND
Q211
POWER SUPPLY CONT.
VREG
Q152, 153
FM/AM LOOP FILTER
+B9
DO
VDB
STABI-LIZER
Q151
VLCD
DC-DC CONV.
Q12A,13A D10,11 L102
VEE
+B8
C2FAEB000004
IC301A
SYSTEM CONTROL / LCD DRIVE
TMUTE
SCK
SO
SI
HPPW
BUSY
VR CRK
INTER-FACE
Q308
TMUTE
TCLK
TSENSE
TDATA
STBY
BUSY
VRCLK
DO ON
ACDET
VDD
X OUT
X IN
6KEY
COM1~4
S1~16
RESET
START
OPEN SW
INT
Q309
POWER SUPPLY
+B10
+B9
Q310
P.SUPPLY CONT.
Q302A
DC IN DET.
+B1
+B9
X301 (75kHz)
LCD
+B9
Q307
INTER-FACE
INT
Q305
INTER-FACE
OPEN
Q301
INTER-FACE
START
Q201A
POWER SUPPLY
+B8
+B9
+B7
D301
C0CBAAC00046
IC8
REGULATOR
+B1
B


AN8885SBE1V
IC101
SERVO AMP
OPTICAL PICKUP
START
NRST
RF
+B6
+B6
RF
RF IN
DEFLVL
CSBRT
CEA
OFTR
3TENV
ENV
RFENV
OFTR
OFTR
BDO
BDO
/RFDET
NRFDET
NRF DET.
RFEQ1
RFEQ2
Q201 ~205
LASER POWER DRIVE
S201 (LASER ON/OFF)
LPD
LD
PDA
PDB
PDE
PDF
+B6
SEMICONDUCTOR LASER
PHOTO DETECTOR
VREF
AMP
GCA
BCA
SUBTRA-CTOR
FE IN
FE OUT
FE
VREF
TE IN
TE OUT
TE
VREF
Vcc
VREF
VREF
BAND GAP
LDON
PDOWN
EQSW
GCTL
TBAL
FBAL
VDD
GND
+B6
OPEN
+B2
VM
FI1
RI1
FI2
RI2
FI3
RI3
SPPOL
SPOUT
MON
BAT MRK
DRGND1
DRGND2
PGND2
GND
FO+
FO-
TR+
TR-
TRV+
TRV-
SPPOL
SPOUT
MON
SOFT
RESET2
FOCUS COIL
TRACKING COIL
TRAVERSE MOTOR
SPINDLE MOTOR
H-BRIDGE1
H-BRIDGE2
H-BRIDGE3
H-BRIDGE4
LOGIC1
LOGIC2
LOGIC3
LOGIC4
EQ
EO
EI
PVcc2 MONITOR
SOFT START
PVcc1 DET2 (TUNER)
REGB/SVcc/ V.SELECT
VCNT
CHARGE2
SPRT
RSTSW
START
START
PVcc2
SHORT PROTECT
VMIC
+B4
TRIANGLE W.F. GEN. (100kHz)
VMIC CONV. CONTROL
MSW
Q DRIVE POWER GEN.
PVcc2
+B2
REG
REGB
REGB
CT
TRIANGLE W.F. GEN. (60kHz)
CLK
PMCK
CD/TUNER MODE SELECT
+B2
Q15
SUB CONV. DRIVE
UP CONV. DRIVE
DOWN CONV. DRIVE
PVcc1 DET1(CD/ TUNER)
RESET1
RESET
VSUB
AN4831FHQEBV
IC11
POWER CONTROL & POWER DRIVE
RIPPLE FILTER
AVcc
CRIP
VG
LG
SSW
SVcc
USW
P-GND1
DSW
PVcc1
D21
L11
+B2
+B5
+B3
+B2


MN662786SB
IC501
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR
DIGITAL FILTER & D/A CONVERTER
DRF
+B6
+B6
BLKCK
+B6
+B5
+B6
42 DSLF
44 PLLF
45 VCOF
40 IREF
73 SUBC
74 SBCK
72 NCLDCK
64 BLKCK
78 DVss1
20 Vss2
49 AVss1
47 AVss2
53 TMOD1
54 TMOD2
46 AVDD2
51 AVDD1
79 DVDD1
21 DVDD2
75 NTEST
29 IOVDD1
59 IODD2
1 DVDD3V
60 TX
39 ARF
DSL/PLL VCO
EFM DEMODULATION/ SYNC INTERPOLATION/ SUBCODE DEMODULATION
DIGITAL AUDIO INTERFACE
65 PWMSEL
4TIMES OVER SAMPLING/ DIGITAL FILTER/ SOFT MUTING/ DIGITAL ATTENUATION
1 BIT DAC PWM LOGIC
PWM (L)
PWM (R)
L.P.F.
L.P.F.
OUTL 48
OUTR 50
R ch
55 FLAG
CIRC ERROR CORRECTION DEINTERLEAVE
16K SRAM
DMUTE 67
MLD 63 MLD
MCLK 61 MCLK
MDATA 62 MDATA
STAT 68 STAT
MICRO COMPUTER INTERFACE
DIGITAL DEEMPHASIS
EXT0~2 57,58, 80
BDO 37 BDO
NRFDET 36 NRFDET
OFTR 35 OFT
INPUT PORT
CLV SERVO
INTER POLATION
ANTI SHOCK MEMORY CONTROLLER
MON 41 AD PVcc
FE 32 FE
TE 33 TE
RFENV 34 RFENV
A/D CONVERTER
SERVO CPU
SERVO TIMING GENERATOR
DRF 43 DRF
D/A CONVERTER
OUTPUT PORT (DIRECT PWM)
TIMING GENERATOR
TR+ 25
TR- 26
FO- 28
FO+ 27
FBAL 31
TBAL 30
LDON 38
TRV+ 23
TRV- 24
SPOUT 22
SPPOL 70
NRST 69
SMCK 66
PMCK 71
FSEL 52
X2 76
X1 77
A0~9 10~19
FCLK 56
D0~3 2,3 6,7
NWE 4
NCAS0 8
NCAS1 9
NRAS 5
X501 (16.9MHz)
8~11, 14~19
2,3, 22,23
4
21
7
5
A0~9
DQ0~3
NWE
NCAS
A10
NRAS
+B6
1,12
VDD
13,24
VSS
C3ABMB000027
IC502
16M DRAM
NOE 20
FI2
RI2
RI1
FI1
FBAL
TBAL
LDON
FI3
RI3
SPOUT
SPPOL
NRST
SMCK
PMCK


NOTE
: CD PLAYBACK SIGNAL LINE
: MAIN SIGNAL LINE
: FM SIGNAL LINE
: FM OSC SIGNAL LINE
: AM OSC SIGNAL LINE
: FM/AM VCAP SIGNAL LINE
( ) indicates pin No. Right channel.
C0ZBZ0000515
IC702
TONE CONTROL
TREBLE
BASS
-63dB CONTROL
0/-10dB
BASS ALC CONTROL
I²C BUS DECODER + LATCHES
HALF WAVE RECTIFIER
SUPPLY
Vref
IN-L (IN-R)
50K
ALC
R ch
NJM2171RTE1
IC701
HEADPHONES AMP
HEADPHONE 16Ω STEREO 3.5mm
Q701
MUTING
Q731
SWITCH-ING
Q901,902
MUTING CONT.
+B1
+B2
+B3
DC IN 4.5V
Q11
REGULATOR
C0ZBZ0000506
IC703
DC-DC CONVERTER
+B6
ICP11
Q17,18
Q703
D703
2 R6/LR6(UM-3) BATTERIES 3V
2 RECHARGEABLE BATTERIES 2.4V
Q12~14
CHARGE CONT.
C0EBD0000066
IC302
RESET
C2BBFD000295
IC301
SYSTEM CONTROL
Q302
INTER-FACE
S202 (REST SWITCH)
TMUTE
REGB
TSENSE
VRCLK
STBY
SMCK
TCLK
TDATA
PDOWN
STAT
MDATA
MCLK
MLD
NRST
X OSC IN
X OSC OUT
MUTE
STAT/SUBQ
/RESET
CHARGE1
VMONITOR1
VMONITOR2
BLKCK
CHARGE2
BUSY
INT
X3
RW
REST
VDD
ADREF
CDSEL3
DOCTOR
TXPOWER
Vss
AVss
TYPESEL
OFFSEL
RAMSEL
RAMSEL2
PMSEL2
PMSEL
OFFSEL2
LDSEL2

Pin No.	Mark	I/O / Division	Function
1~4	COM1 / ~COM4	O	LCD common signal output terminal
5~20	S1~S16	O	LCD segment signal output terminal
21	BUSY	O	BUSY signal output terminal
22	HPPW	O	Headphone AMP ON signal output
23	RADIO KEY	I	RADIO key input terminal
24	PLAY KEY	I	PLAY key input terminal
25	IF REQ	O	IF request signal output
26	OPEN	I	Cover open detection input
27	V_{DD}	I	Power supply input terminal
28	BUZ	O	BUZZER signal output terminal
29	CITY	O	CITY/NORMAL select signal output terminal
30	MONO	O	MONO selection output terminal
31	TUNED	I	Tuner signal input terminal
32	TMUTE	O	Muting control signal output terminal
33	TEST	—	Test terminal (Not used, open)
34	SLEEP	I	Sleep mode translate signal input
35	INT	I	Data signal input terminal from system micom (IC301)
36	IF COUNT	I	IF counter signal input
37	GND	—	GND terminal
38	OSC IN	I	FM/AM oscillation signal input terminal
39	V_{DD}	I	Power supply input terminal
40	DO	O	Tune frequency control signal output terminal
41	VREG	I	Power input terminal for phase control (Connected to GND through capacitor)
42	DO ON	O	Phase control output terminal
43	SI	I	Data input terminal

Pin No.	Mark	I/O / Division	Function
44	SO	O	Data output terminal
45	SCK	I	Data clock input terminal
46	6KEY	I	6KEY signal input terminal
47	KEY 1	I	EQ, SKIP-R, FM, VOL+, HOLD key input terminal
48	KEY 2	I	STOP, SKIP-F, MEMORY, VOL- key input terminal
49	SELECT	I	Battery check signal/Area selection input
50	AM	O	AM selection output terminal
51	VR CRK	O	Clock signal output for VOLUME IC communication
52	ACDET	O	AC detection signal input terminal
53	START	O	Start signal output
54	RESET	I	Reset signal input terminal
55	XOUT	O	Crystal oscillator output terminal (F=75kHz)
56	XIN	I	Crystal oscillator input terminal (F=75kHz)
57	GND	—	GND terminal
58	VDB	—	Connected to GND through capacitor
59	C1	—	Connected to C2 through capacitor
60	C2	—	Connected to C1 through capacitor
61	V_{EE}	—	Connected to GND through capacitor
62	C3	—	Connected to C4 through capacitor
63	C4	—	Connected to C3 through capacitor
64	VLCD	—	Connected to GND through capacitor

15.2. IC11(AN4831FHQEBV): DC/DC Converter

Pin No.	Mark	I/O / Division	Function
1	CRIP	—	Ripple filter smoothing capacitor connection terminal
2	VG	—	Power Mos drive circuit power supply terminal
3	LG	I	Coil drive input terminal for VG voltage increase
4	PGND2	—	GND (2) terminal (power)
5	VSUB	I	Sub power supply terminal
6	SSW	O	Coil drive output terminal for sub voltage increase
7	SVCC	O	Power supply output terminal for DC/DC converter
8	USW	—	Coil drive terminal for voltage increase
9	PGND1	—	GND (1) terminal (power)
10	DSW	—	Coil drive terminal for voltage increase
11	PVCC 1	I	Battery power supply input terminal
12	REGB	I	Tr drive input terminal for regulator
13	PVCC 2	I	AC adaptor power supply input terminal
14	RESET1	O	PVCC 1 power supply detection output (1)
15	CLK	I	DC/DC converter external clock input terminal
16	PREGND	—	GND terminal (control circuit)
17	SPPOL	I	Spindle motor drive signal input
18	SPOUT		
19	TRV+	I	Traverse motor drive signal input
20	TRV-		
21	TR+	I	Tracking coil drive signal input
22	TR-		
23	FO+	I	Focus coil drive signal input
24	FO-		
25	MON	I	VM monitor terminal
26	FO+	O	Focus coil drive signal output
27	FO-		
28	DRGND1	—	Motor GND (1)

Pin No.	Mark	I/O / Division	Function
29	TR+	O	Tracking coil drive signal output
30	TR-		
31	VM	—	Motor power supply terminal
32	TRV+	O	Traverse motor drive signal output
33	TRV-		
34	DRGND2	O	Motor GND (2)
35	SP+	O	Spindle motor drive signal output
36	SP-		
37	SOFT	O	Soft start setting output terminal (Connected to GND through capacitor)
38	SPRT	O	For setting of constants at power OFF (Connected to GND through capacitor)
39	CT	O	Triangular wave output terminal (Connected to GND through capacitor)
40	RESET2	O	PVCC 1 power supply detection output (2)
41	START	I	Starting of DC/DC converter input
42	RSTSW	O	CD/Tuner mode select output
43	VMIC	O	Power supply terminal / (for micro computer)
44	MSW	I	Coil drive input terminal for VMIC voltage increase
45	EO	O	DC/DC converter error amplifier output terminal
46	EI	I	DC/DC converter error amplifier input terminal
47	VCNT	I	SVCC and PVCC 1 setting terminal / (When recharging)
48	AVCC	O	Ripple filter output terminal

15.3. IC101(AN8885SBE1V): Servo Amplifier

Pin No.	Mark	I/O / Division	Function
1	PDE	I	Tracking signal input (1) terminal
2	PDF	I	Tracking signal input (2) terminal
3	V_{CC}	O	Power supply output terminal
4	PDA	I	Focus signal input (1) terminal
5	PDB	I	Focus signal input (2) terminal
6	LPD	I	APC amplifier input terminal
7	LD	O	APC amplifier output terminal
8	RF	O	RF addition output terminal
9	RF IN	I	RF detection signal input terminal
10	CSBRT	I	Capacitor connection terminal for detection of RF envelope signal
11	CEA	I	Capacitor connection terminal for H.P.F. amplifier
12	BD0	O	BD0 output terminal
13	LDON	I	APC control terminal
14	GND	—	Connected to GND
15	/RFDET	O	NRFDET output terminal
16	PDOWN	O	Power down mode control terminal
17	OFTR	O	Off-track signal output terminal / (H:off-track)
18	DEFLVL	—	OFTR/BD0 detection level control terminal
19	ENV	O	3TENV output terminal
20	GCTL	I	RF/FE/TE gain control terminal
21	EQSW	I	EQ characteristic control terminal
22	TE IN	I	TE amplifier reverse input terminal
23	TE OUT	O	TE amplifier output terminal
24	FE OUT	O	FE amplifier output terminal
25	FE IN	I	FE amplifier reverse input terminal
26	VREF	O	VREF output terminal

26	VREF	O	VREF output terminal

Pin No.	Mark	I/O / Division	Function
27	TBAL	I	TBAL control terminal
28	FBAL	I	FBAL control terminal

15.4. IC301(C2BBFD000295): System Control

Pin No.	Mark	I/O / Division	Function
1	BUSY	I	BUSY signal input from Tuner micom (IC301)
2	DOCTOR	I	Doctor mode signal input terminal (Connected to power supply through resistor)
3	VMONITOR1	I	Rechargeable battery voltage measurement signal input (1)
4	JUDGE	—	Not used, open
5	VMONITOR2	I	Rechargeable battery voltage measurement signal input (2)
6~8	NC	—	Connected to GND
9	MUTE	O	Hard mute signal output terminal
10	BUZ	O	Buzzer output for CD action
11	NC	—	Connected to GND
12	INT	O	Inform to starting of serial communication signal output toTuner micom
13	TSENSE	I	Serial data input from Tuner micom (IC301)
14	TXPOWER	O	Digital output terminal
15	TDATA	O	Serial data output to Tuner micom (IC301)
16	TCLK	O	Serial clock output to Tuner micom (IC301)
17	MLD	O	Serial command latch signal output
18	MCLK	O	Serial command clock signal output
19	MDATA	O	Serial command data signal output
20	STAT / / SUBQ	I	Status signal/block clock data signal input terminal

Pin No.	Mark	I/O / Division	Function
21	BLKCK	I	Block clock signal input terminal
22,23	NC	—	Connected to GND
24	TYPESEL	I	Model select input terminal (L:SX289V)
25	/RESET	I	Reset signal input
26	SCL	—	Not used, open
27	SDA		
28	XOSCIN	I	System clock signal input
29	XOSCOUT	O	System clock signal output
30	Vss	—	GND terminal
31	REST	I	REST switch input
32	A.SHOCK	—	Not used, open
33	NC		
34	RESUME		
35,36	NC		
37	ACDET		
38	RW	O	CD-RW correspondence signal output
39	PDOWN	O	Head amp. power supply OFF signal output (H:OFF)
40	CHARGE2	O	Charging ON signal output (2) (H:ON)
41~43	NC	—	Not used, open
44	CHARGE1	O	Charging ON signal output (1) (H:ON)
45	X3	O	RF equalizer triple speed signal output
46	NC	—	Not used, open
47	OFFSEL	—	Connected to GND
48	RAMSEL		
49	RAMSEL2		
50	PMSEL2		
51	PMSEL		
52	LDSEL3	I	Triple speed select signal input (Connected to power supply)
53	OFFSEL2	—	Connected to GND
54	LDSEL2		
55~70	NC		

Pin No.	Mark	I/O / Division	Function
71	VDD	I	Power supply terminal
72	ADREF	I	
73	AVSS	—	GND terminal
74~80	NC	—	Connected to GND

15.5. IC501(MN662786SB): Servo processor, Digital Signal Processing, Digital Filter, and D/A Converter

Pin No.	Mark	I/O / Division	Function
1	DVDD 3V	I	Power supply input terminal for DRAM interface (Pin No. 2~19,80)
2	D0	I/O	Data input/output terminal for DRAM
3	D1		
4	NWE	O	Write enable output terminal for DRAM
5	NRAS	O	RAS control signal output terminal for DRAM
6	D2	I/O	Data 2/3 input /output terminal for DRAM
7	D3		
8	NCAS0	O	CAS control 0 signal output terminal for DRAM
9	NCAS1	O	CAS control 1 signal output terminal for DRAM
10~14	A8~A4	O	Addresses 8~4 output terminal for DRAM
15	A9	O	Address 9 output terminal for DRAM
16~19	A0~A3	O	Addresses 0~3 output terminal for DRAM
20	DVSS 2	I	Connected to GND
21	DVDD 2	I	Power supply input terminal for digital circuit
22	SPOUT	O	Spindle motor drive output terminal (absolute value)
23	TRV+	O	Traverse motor drive (+) output terminal
24	TRV-	O	Traverse motor drive (-) output terminal
25	TR+	O	Tracking motor drive (+) output terminal

Pin No.	Mark	I/O / Division	Function
26	TR-	O	Tracking motor drive (-) output terminal
27	FO+	O	Focus motor drive (+) output terminal
28	FO-	O	Focus motor drive (-) output terminal
29	IOVDD1	I/O	Power supply for IN/OUT
30	TBAL	O	Tracking balance adjustment output terminal
31	FBAL	O	Focus balance adjustment output terminal
32	FE	I	Focus error signal input terminal (Analog input)
33	TE	I	Tracking error signal input terminal (Analog input)
34	RFENV	I	RF envelope signal input terminal (Analog input)
35	OFT	I	Off-track signal input terminal (H:off-track)
36	NRFDET	I	RF detection signal input terminal (L:detection)
37	BD0	I	Dropout signal input terminal (H:dropout)
38	LDON	O	Laser ON signal output terminal (H:ON)
39	ARF	I	RF signal input terminal
40	IREF	I	Reference current input terminal
41	ADPVCC	O	A/D reference voltage output terminal (Analog input)
42	DSLF	O	Loop filter output terminal for DSL
43	DRF	I	Bias input terminal for DSL
44	PLLF	O	Loop filter output terminal for PLL
45	VCOF	O	Loop filter output terminal for jitter-free VCO
46	AVDD 2	I	Power supply input terminal for analog circuit (DSL,PLL,VCOF,AD,DA)
47	AVSS 2	I	GND for analog circuit (DSL,PLL,VCOF,AD,DA)

Pin No.	Mark	I/O / Division	Function
48	OUTL	O	Left channel audio signal output terminal
49	AVSS 1	—	Connected to GND
50	OUTR	O	Right channel audio signal output terminal
51	AVDD 1	I	Power supply input terminal for analog circuit
52	FSEL	I	Noise filter ON/OFF switching input terminal (L: ON/H:OFF) / (Connected to GND)
53	TMOD1	—	Test terminal (L:normal) / (Connected to GND)
54	TMOD2		
55	FLAG	O	Flag signal output terminal / (Not used, open)
56	IPFLAG	O	Interpolation flag output terminal (H: interpolation)(Not used, open)
57	EXT0	I/O	Extension IN/OUT port (0) / (Not used, open)
58	EXT1	I/O	Extension IN/OUT port (1) / (Not used, open)
59	IOVDD 2	I	Power supply for IN/OUT
60	TX	O	Digital audio interface signal output terminal (Not used, open)
61	MCLK	I	Microprocessor command clock signal input terminal
62	MDATA	I	Microprocessor command data signal input terminal
63	MLD	I	Microprocessor command load signal input terminal (L: load)
64	BLKCK	O	Sub-code block clock signal output terminal (f=75Hz: during normal speed playback)
65	PWMSEL	I/O	PWM output mode select input terminal (L:direct, H:3 value) / (Connected to GND)
66	SMCK	O	System clock signal output terminal (f=4.236/8.4672MHz)

Pin No.	Mark	I/O / Division	Function
67	DMUTE	I/O	Mute input terminal (H:mute) / (Connected to GND)
68	STAT	O	Status signal output terminal
69	NRST	I	Reset signal input terminal (H:reset)
70	SPPOL	O	Spindle motor drive signal output terminal (polarity output)
71	PMCK	O	Clock signal output terminal (f=88.2KHz)
72	NCLDCK	O	Frame clock signal output terminal (f=7.35KHz:during normal speed playback)(Not used, open)
73	SUBC	O	Sub-code serial output terminal / (Not used, open)
74	SBCK	I	Clock input terminal for sub-code output terminal
75	NTEST	I	Test input terminal (H: normal)
76	X2	O	Crystal oscillator circuit output terminal (f= 16.9344MHz)
77	X1	I	Crystal oscillator circuit input terminal (f= 16.9344MHz)
78	DV_{SS} 1	—	Connected to GND
79	DV_{DD} 1	I	Power supply input terminal for digital circuits
80	EXT2	I	Extension IN/OUT port (2) / (Not used, open)

16. Replacement Parts List

Notes:
***Important safety notice:**
Components identified by ⚠ mark have special characteristics important for safety.
***Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.**
***When replacing any of components, be sure to use only manufactures specified parts shown in the parts list.**
***The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)**
Parts without these indications can be used for all areas.

***The parenthesized indications in the Remarks columns specify the colours. (Refer to the cover page for colour.)**
Parts without these indications can be used for all colours.
***Warning: This product uses a laser diode. Refer to caution statements.**
***Capacity values are in microfarads (μF) unless specified otherwise, P=Pico-farads (pF), F= Farads (F).**
***Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM).**
***The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availabilityis dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.**
***"<IA>~<IC>" marks in Remarks indicate languages of instruction manuals.**
[<IA>: English, Chinese, Arabic, / <IB>: English

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RGN2074-K	NAME PLATE	1	(GC)
1	RGN2075-K	NAME PLATE	1	(GN)
2	RKK0135-H	BATTERY LID	1	
3	RGV0200-K	SLIDE KNOB	1	
4	RJC93020-1	BATTERY TERMINAL	1	
5	RFKJSX289VEB	BOTTOM CABINET ASS'Y	1	
5-1	RKA0112-K	FOOT	2	
6	RMB0679	OPENSPRING	1	
7	REZ1305-1	FFC(24P)	1	
8	RGU1975-A	OPERATION BUTTON	1	
9	RHE5079YA	SCREW	8	
10	RMR1372-H	LID COVER	1	
11	RKW0641-A	LCD PANEL	1	
12	RSQ0072	ZEBRA RUBBER	1	
13	RGD0076-S	CD COVER	1	
14	RGU1838-H	OPEN BUTTON	1	
15	RKM0411A-H	INTERMEDIATE CABINET	1	
16	RML0580	STOPPER	1	
17	XTN17+6GFZ	SCREW	3	
19	RAE0145Z	TRAVERSE DECK	1	⚠
19-1	RAF0142A	OPTICAL PICKUP	1	⚠
19-2	RDG0305	GEAR	1	
19-3	RDG0306	GEAR	1	
19-4	RJB2106A	TRAVERSE FPC	1	
19-5	RMG0449-H	FLOATING RUBBER	3	
19-6	RMC0264	THRUST SPRING	1	
19-7	RXQ0482	NUT PLATE SPRING	1	
19-8	RXQ0525	TRAVERSE MOTOR	1	
19-9	SNSD38	SCREW	1	
19-10	XQN17+BG45	SCREW	1	
19-11	XQN17+CG45	SCREW	1	
19-12	XQN2+BG55	SCREW	1	
20	RMQ1020	SWITCH SHEET(L)	1	
21	RMQ1021	SWITCH SHEET(R)	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A1	L0BAB0000124	STEREO EARPHONES	1	
A2	N2QCBD000011	WIRED REMOTE CONTROL	1	
A3	RFEA403Z-S	AC ADAPTOR	1	(GC) ⚠
A3	RFEA403A-S	AC ADAPTOR	1	(GN) ⚠
A4	RQT5848-G	INSTRUCTION MANUAL	1	(GC)<IA>
A4	RQT5847-B	INSTRUCTION MANUAL	1	(GN)<IB>
A5	RQCB0169	SERVICE CENTER LIST	1	
A6	SJP5213-2	AC PLUG ADAPTOR	1	K2DR42E00003 (GC) ⚠
C10	ECUV1H121KCV	50V 120P	1	
C12	RCST1AY475RG	10V 4.7U	1	F3F1A4750003
C13	RCST1CC476RC	16V 47U	1	F3H1A476A001
C14	RCE0JKA221IG	6.3V 220U	1	F2A0J2210012
C15	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C17	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C18	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C19	ECA1CAK220XH	16V 22U	1	
C20	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C21	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C22	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C23	ECUV1A335KBN	10V 3.3U	1	F1J1A335A005
C23A	ECUV1H220JCV	50V 22P	1	
C24	ECUV1H391KBV	50V 390P	1	
C25	ECUVNC104KBV	16V 0.1U	1	
C26	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C27	RCE0JRS102BJ	6.3V 1000U	1	F2A0J102A130
C30	RCST0GY476RG	4V 47U	1	F3F0G4760001
C32	RCST1CY335RG	16V 3.3U	1	F3F1C3350005
C33	ECUV1H101JCV	50V 100P	1	F1H1H101A004
C34	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C35	ECUVNE223KBV	25V 0.022U	1	F1H1E223A050
C36	ECUV1H390JCV	50V 39P	1	
C37	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C38	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C38A	ECUVNC105KBN	16V 1U	1	F1J1C105A091
C101	ECUVNC104KBV	16V 0.1U	1	
C103A	ECUV1H221GCV	50V 220P	1	F1H1H221A002
C103	ECUVNE223KBV	25V 0.022U	1	F1H1E223A050
C105	RCST0GY226RG	4V 22U	1	F3F0G2260002
C110	ECUV1H050CCV	50V 5P	1	
C111A	ECUV1H470JCV	50V 47P	1	
C111	ECUVNE223KBV	25V 0.022U	1	F1H1E223A050
C112	ECUV1H221KBV	50V 220P	1	F1H1H2210001
C112A	ECUV1H470GCV	50V 47P	1	F1H1H470A002
C113,14	ECUZNC104ZFV	16V 0.1U	2	F1H1C1040008
C115A	ECUV1H102KBV	50V 1000P	1	
C115	ECUVNE223KBV	25V 0.022U	1	F1H1E223A050
C116A	ECUV1H102KBV	50V 1000P	1	
C116,17	ECUVNE223KBV	25V 0.022U	2	F1H1E223A050
C119	ECUV1H010CCV	50V 1P	1	
C120	ECUV1H152KBV	50V 1500P	1	F1H1H152A013
C121	ECUV1H121KCV	50V 120P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C123	ECUV1H102KBV	50V 1000P	1	
C151	ECUVNC473KBV	16V 0.047U	1	F1H1C473A071
C153	ECUVNC105KBN	16V 1U	1	F1J1C105A091
C155	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C157	ECUV1H120JCV	50V 12P	1	
C159	ECUV1H471KBV	50V 470P	1	F1H1H471A013
C161	ECUVNE153KBV	25V 0.015U	1	F1H1E153A050
C201	ECA0JAK470XH	6.3V 47U	1	
C202,03	ECUZNC104ZFV	16V 0.1U	2	F1H1C1040008
C204	ECUV1H020CCV	50V 2P	1	
C206	ECUVNC333KBV	16V 0.033U	1	F1H1C333A071
C207	ECUV1H471GCV	50V 470P	1	
C209	ECUV1H010CCV	50V 1P	1	
C210	ECUV1H150JCV	50V 15P	1	
C211	ECUV1H221KBV	50V 220P	1	F1H1H2210001
C212	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C215	RCST0GY475RG	4V 4.7U	1	F3F0G475A005
C216	ECUVNJ474KBV	6.3V 0.47U	1	F1H0J474A002
C221	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C223	ECUVNC473KBV	16V 0.047U	1	F1H1C473A071
C225	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C228,29	ECUVNH103KBV	50V 0.01U	2	F1H1H103A748
C230-32	ECUVNC104KBV	16V 0.1U	3	
C234	ECUVNC104KBV	16V 0.1U	1	
C235	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C236	ECUV1H102KBV	50V 1000P	1	
C239	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C240	ECUVNC104KBV	16V 0.1U	1	
C242	ECUV1H102KBV	50V 1000P	1	
C301	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C302	ECUVNA105KBV	10V 1U	1	F1H1A105A028
C307,08	ECUVNC104KBV	16V 0.1U	2	
C309	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C310	ECUVNC104KBV	16V 0.1U	1	
C311	RCST0GY226RG	4V 22U	1	F3F0G2260002
C313,14	ECUV1H050DCV	50V 5P	2	
C315	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C316	ECUV1H102KBV	50V 1000P	1	
C317	RCST0GY476RG	4V 47U	1	F3F0G4760001
C322	ECUVNJ474KBV	6.3V 0.47U	1	F1H0J474A002
C324	ECUV1H102KBV	50V 1000P	1	
C326	ECUV1H331KBV	50V 330P	1	
C328	ECUV1H221KBV	50V 220P	1	F1H1H2210001
C329	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C330,31	ECUVNA105ZFV	10V 1U	2	F1H1A105A030
C333	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C340	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C351	RCE0JKA221IG	6.3V 220U	1	F2A0J2210012
C352	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C503	ECUV1H561KBV	50V 560P	1	F1H1H561A013
C504	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C504A	RCST0GY476RG	4V 47U	1	F3F0G4760001
C505	ECUVNE223KBV	25V 0.022U	1	F1H1E223A050
C506	ECUVNJ474KBV	6.3V 0.47U	1	F1H0J474A002

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C506A	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C507	ECEA0JKS331	6.3V 330U	1	
C508	ECUVNJ474KBV	6.3V 0.47U	1	F1H0J474A002
C509	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C511	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C512	ECEA0GKS101	4V 100U	1	
C514	ECUV1H102KBV	50V 1000P	1	
C515	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C519	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C551	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C603,04	ECUV1H272KBV	50V 2700P	2	
C605,06	ECUVNA105ZFV	10V 1U	2	F1H1A105A030
C610	ECA0JAK470XH	6.3V 47U	1	
C612	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C701,02	ECST0GY106RR	4V 10U	2	ECST0GY106R
C703	ECST0JY106RR	6.3V 10U	1	ECST0JY106R
C705,06	ECEA0GKS221	4V 220U	2	
C707	ECUVNA105KBV	10V 1U	1	F1H1A105A028
C708-10	ECUVNA105ZFV	10V 1U	3	F1H1A105A030
C719	ECUV1H470KCV	50V 47P	1	
C751,52	ECUVNA105ZFV	10V 1U	2	F1H1A105A030
C753,54	ECUV1H562KBV	50V 5600P	2	
C755-58	ECUZNC104ZFV	16V 0.1U	4	F1H1C1040008
C759	ECUVNC474ZFV	16V 0.47U	1	
C760	ECST0JY475RR	6.3V 4.7U	1	ECST0JY475R
C761	RCST0GY226RG	4V 22U	1	F3F0G2260002
C781	ECST0JY475RR	6.3V 4.7U	1	ECST0JY475R
C782	ECST1CY105RR	16V 1U	1	ECST1CY105R
C902	ECUV1H332KBV	50V 3300P	1	F1H1H332A013
CF101	RLFFECNN01AL	CERAMIC FILTER	1	J0B1075B0030
CF201	J0B4503B0027	CERAMIC FILTER	1	
CF203	J0B1075B0038	CERAMIC FILTER	1	
CN11	RJH8303-2	BATTERY TERMINAL	1	K4BC03B00010
CN101	RJS2A6216T	CONNECTOR(16P)	1	K1MN16B00027
CN301	RJS2A6124T	CONNECTOR(24P)	1	K1MN24A00023
CN401	RJS2A5106T1	CONNECTOR(6P)	1	K1MN06A00021
CN501	RJS2A4524T1	CONNECTOR(24P)	1	K1MN24B00033
D10	MA147TX	DIODE	1	MA3J14700L
D11	MA8120M	DIODE	1	MAZ81200M
D21	MA111TX	DIODE	1	MA2J11100L
D101,02	KV1450TL3-4	VARIABLE CAPACITOR	2	B0CDBB000006
D201	KV1610STL2-0	VARIABLE CAPACITOR	1	B0CDBB000004
D301	MA728TX	DIODE	1	MA2J72800L
D701	MA111TX	DIODE	1	MA2J11100L
D703	MA111TX	DIODE	1	MA2J11100L
IC1	C1BB00000562	IC	1	
IC8	C0CBAAC00046	IC	1	
IC9	XC61CN1602MR	IC	1	
IC11	AN4831FHQEBV	IC	1	
IC101	AN8885SBE1V	IC	1	

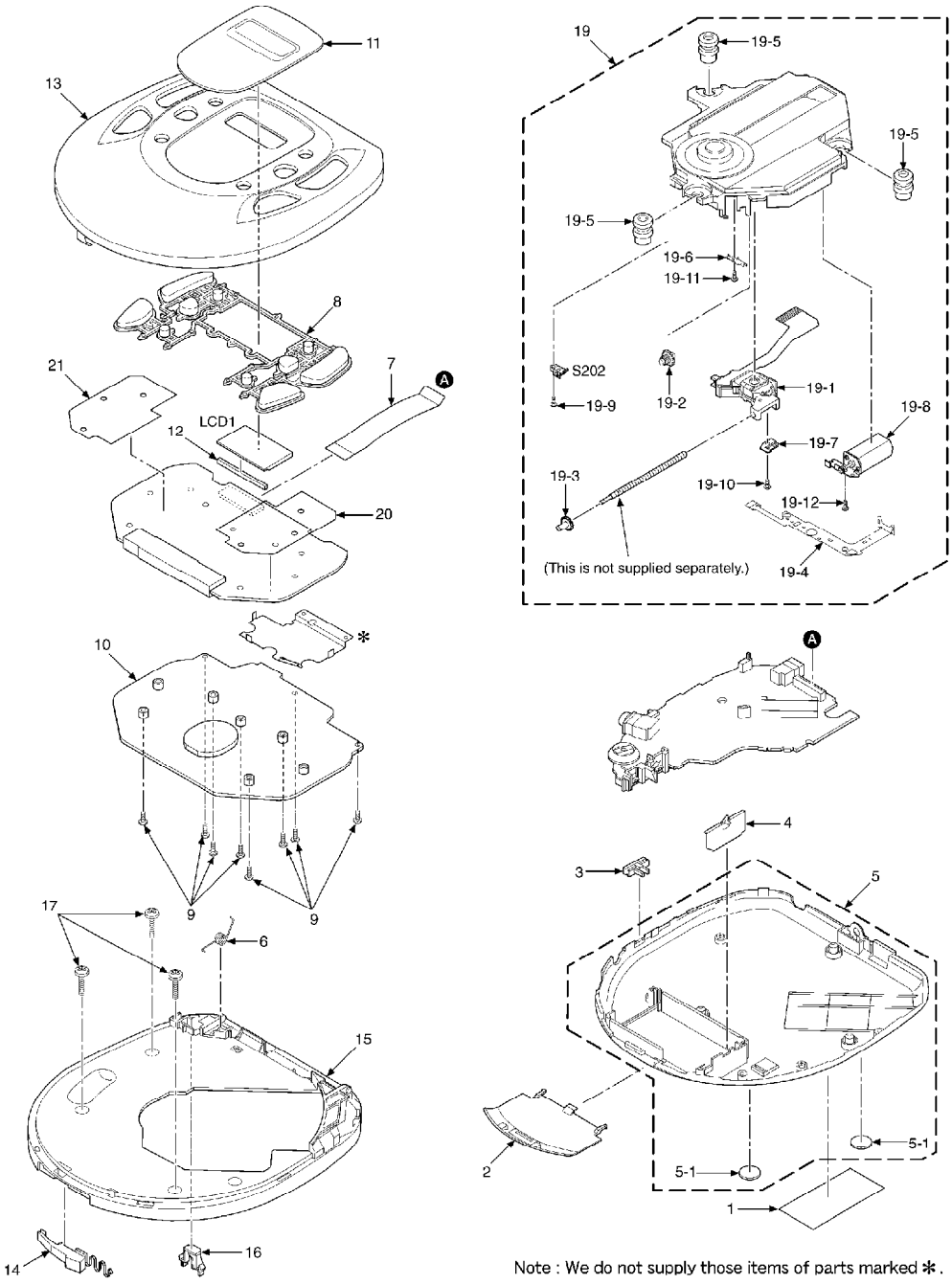
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
IC301	C2BBFD000295	IC	1	
IC301A	C2FAEB000004	IC	1	
IC302	C0EBD0000066	IC	1	
IC501	MN662786SB	IC	1	
IC502	C3ABMB000027	IC	1	
IC701	NJM2171ARTE1	IC	1	C0ZZZ0000015
IC702	C0ZBZ0000515	IC	1	
IC703	C0ZBZ0000506	IC	1	
ICP11	RSFPB20ET-L	IC PROTECTOR	1	K5H102Z00002 ⚠
JK11	RJJ43K09-C	JACK,DC IN	1	K2EB2B000006
JK701	K2HC104B0013	JACK,HEADPHONE	1	
L11	RLQU331KT-W	COIL	1	G1C331K00004
L12	RLQS101KT1-D	COIL	1	G1A101C00001
L13	RLQU331KT-W	COIL	1	G1C331K00004
L101	RLQM101NJT-W	COIL	1	G1CR10J00015
L102	G5ZZ00000047	COIL	1	
L103	RLQM101NJT-W	COIL	1	G1CR10J00015
L156	RLQP68NMT2-Y	COIL	1	G1C68NM00003
L157	RLQPR22KT2-Y	COIL	1	G1CR22KA0009
L201	RLV2N064-0	FERRITE ANTENNA	1	
L202	RL02U035T-T	COIL	1	G3A124C00001
L701-04	RLBV252AV-Y	COIL	4	J0JBC0000019
LCD301	L5ACADB00002	LCD	1	
P1	RPK1547	PACKING CASE	1	
P2	RPQ0836-1	PAD	1	
P3	RPQ0924	PAD	1	(GN)
P4	RPQ0966	PAD	1	(GN)
P5	RPQ0925-1	PAD	1	(GC)
P6	RPF0111	PROTECTION BAG(UNIT)	1	
PCB1	REP3147B-M	MAIN P.C.B.ASS'Y	1	(RTL)
PCB2	REP3146C-S	TUNER P.C.B.ASS'Y	1	(RTL)
Q11	2SB1132T100	TRANSISTOR	1	B1ADMD000007
Q12A	2SC4617STL	TRANSISTOR	1	
Q12	B1ABMD000004	TRANSISTOR	1	
Q13A	2SC4617STL	TRANSISTOR	1	
Q13	DTC143EUA106	TRANSISTOR	1	B1GBCFGG0011
Q14	UN5214TX	TRANSISTOR	1	UNR521400L
Q15	DTA144EUA106	TRANSISTOR	1	B1GDCFNN0007
Q16,17	2SK1958T1	TRANSISTOR	2	B1CFHA000001
Q18	B1GDCFQA0003	TRANSISTOR	1	
Q151	2SK1067-4-TL	TRANSISTOR	1	B1CFCB000008
Q152,53	2SD1819ASTX	TRANSISTOR	2	2SD1819ASL
Q201	2SB709ASTX	TRANSISTOR	1	2SB0709ASL
Q201A	2SB815B7TX	TRANSISTOR	1	B1ADJB000001
Q202	2SB1295-6-TB	TRANSISTOR	1	B1ADKB000001
Q202A	2SC4081STX	TRANSISTOR	1	B1ABCF000021
Q203	B1GDCFQA0003	TRANSISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q203A	UN5115TX	TRANSISTOR	1	UNR511500L
Q204	DTC125TUA106	TRANSISTOR	1	B1GBCFRA0001
Q204A	DTC144TUA106	TRANSISTOR	1	B1GBCFNA0010
Q205	2SB1295-6-TB	TRANSISTOR	1	B1ADKB000001
Q206	UN5115TX	TRANSISTOR	1	UNR511500L
Q207	2SC3935TX	TRANSISTOR	1	2SC39350PL
Q208	UN5115TX	TRANSISTOR	1	UNR511500L
Q210	2SK1067-4-TL	TRANSISTOR	1	B1CFCB000008
Q301	UN5215TX	TRANSISTOR	1	UNR521500L
Q302	UN5213TX	TRANSISTOR	1	UNR521300L
Q302A	UN5213TX	TRANSISTOR	1	UNR521300L
Q303	UN5214TX	TRANSISTOR	1	UNR521400L
Q304	UN5114TX	TRANSISTOR	1	UNR511400L
Q305	DTC125TUA106	TRANSISTOR	1	B1GBCFRA0001
Q307,08	UN5214TX	TRANSISTOR	2	UNR521400L
Q309	2SB815B7TX	TRANSISTOR	1	B1ADJB000001
Q310	UN5213TX	TRANSISTOR	1	UNR521300L
Q402	DTC144TUA106	TRANSISTOR	1	B1GBCFNA0010
Q404	DTC144TUA106	TRANSISTOR	1	B1GBCFNA0010
Q701	XN0F26200L	TRANSISTOR	1	
Q703	DTA114YUA106	TRANSISTOR	1	B1GDCFJN0011
Q731	2SC3931CTX	TRANSISTOR	1	2SC39310CL
Q901	DTA114YUA106	TRANSISTOR	1	B1GDCFJN0011
Q902	FMG2T148	TRANSISTOR	1	B1GFCFNN0003
Q903	DTA144EUA106	TRANSISTOR	1	B1GDCFNN0007
Q904	UN5213TX	TRANSISTOR	1	UNR521300L
R10	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z
R11	ERJ3GEYD103V	1/16W 10K	1	D0HB103ZA002
R12	ERJ3GEYD183V	1/16W 18K	1	
R13	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z
R14	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R15,16	ERJ3GEYJ104Z	1/16W 100K	2	
R17	ERJ12YJ2R2H	1/2W 2.2	1	
R18	ERJ12YJ1R8U	1/2W 1.8	1	
R19	ERJ3GEY0R00V	1/16W 0	1	
R21	ERJ3GEYJ333V	1/16W 33K	1	D0GB333JA002
R22A	ERJ3GEYJ104Z	1/16W 100K	1	
R22	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R23A	ERJ3GEYJ221V	1/16W 220	1	
R23	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R24	ERJ3GEYJ221V	1/16W 220	1	
R25	ERJ3GEYJ4R7V	1/16W 4.7	1	
R27	ERJ3GEYJ392V	1/16W 3.9K	1	
R28	ERJ3GEYJ152V	1/16W 1.5K	1	
R30	ERJ3GEYJ105V	1/16W 1M	1	
R31	ERJ3GEYJ474V	1/16W 470K	1	
R109	EXBV4V474JV	1/32W 470K	1	
R120	ERJ3GEYJ103Z	1/16W 10K	1	
R121,22	ERJ3GEYJ124V	1/16W 120K	2	D0GB124JA002
R128,29	ERJ3GEYJ103Z	1/16W 10K	2	
R130	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
R131	ERJ3GEYJ104Z	1/16W 100K	1	
R151	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R153	ERJ3GEYJ682V	1/16W 6.8K	1	D0GB682JA002
R154	ERJ3GEYJ332V	1/16W 3.3K	1	D0GB332JA002
R155	ERJ3GEYJ4R7V	1/16W 4.7	1	
R159	ERJ3GEYJ471V	1/16W 470	1	
R160	ERJ3GEYJ103Z	1/16W 10K	1	
R201	ERJ3GEYJ2R2V	1/16W 2.2	1	D0GB2R2JA002
R202	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R202A	ERJ3GEYJ471V	1/16W 470	1	
R203A	ERJ3GEYJ101V	1/16W 100	1	
R203	ERJ3GEYJ222V	1/16W 2.2K	1	
R204A	ERJ3GEYJ224V	1/16W 220K	1	D0GB224JA002
R204	ERJ3GEYJ474V	1/16W 470K	1	
R205A	ERJ3GEYJ103Z	1/16W 10K	1	
R205	ERJ3GEYJ222V	1/16W 2.2K	1	
R206	ERJ3GEYJ224V	1/16W 220K	1	D0GB224JA002
R218	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z
R231	ERJ3GEYJ332V	1/16W 3.3K	1	D0GB332JA002
R233	ERJ3GEYJ331V	1/16W 330	1	
R234	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R235	ERJ3GEYJ221V	1/16W 220	1	
R301	ERJ3GEYJ104Z	1/16W 100K	1	
R302	EXBV8V104JV	1/16W 100K	1	
R303	ERJ3GEYJ393V	1/16W 39K	1	D0GB393JA002
R304	ERJ3GEYJ105V	1/16W 1M	1	
R305	ERJ3GEYJ394V	1/16W 390K	1	
R307	ERJ3GEYJ104Z	1/16W 100K	1	
R308	ERJ3GEYJ333V	1/16W 33K	1	D0GB333JA002
R310	ERJ3GEYJ103Z	1/16W 10K	1	
R321	ERJ3GEYJ104Z	1/16W 100K	1	
R322	EXBV8V474J	1/16W 470K	1	
R331	ERJ3GEYJ105V	1/16W 1M	1	
R350	EXBV4V102JV	1/32W 1K	1	
R351	ERJ3GEYJ124V	1/16W 120K	1	D0GB124JA002
R352	ERJ3GEYJ563V	1/16W 56K	1	
R354	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R355	ERJ3GEYJ224V	1/16W 220K	1	D0GB224JA002
R358	ERJ3GEYJ563V	1/16W 56K	1	
R359	ERJ3GEYJ224V	1/16W 220K	1	D0GB224JA002
R360	ERJ3GEYJ124V	1/16W 120K	1	D0GB124JA002
R361	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R365	ERJ3GEYJ333V	1/16W 33K	1	D0GB333JA002
R366,67	ERJ3GEYJ563V	1/16W 56K	2	
R370	ERJ3GEYJ563V	1/16W 56K	1	
R371	ERJ3GEYJ105V	1/16W 1M	1	
R372	ERJ3GEYJ474V	1/16W 470K	1	
R375	ERJ3GEYJ103Z	1/16W 10K	1	
R376	ERJ3GEYJ104Z	1/16W 100K	1	
R379	ERJ3GEYJ563V	1/16W 56K	1	
R381	ERJ3GEYJ563V	1/16W 56K	1	
R402	ERJ3GEYJ472V	1/16W 4.7K	1	D0GB472JA002
R405	ERJ3GEYJ472V	1/16W 4.7K	1	D0GB472JA002
R501	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
R502	ERJ3GEYJ563V	1/16W 56K	1	
R505	ERJ3GEYJ151V	1/16W 150	1	

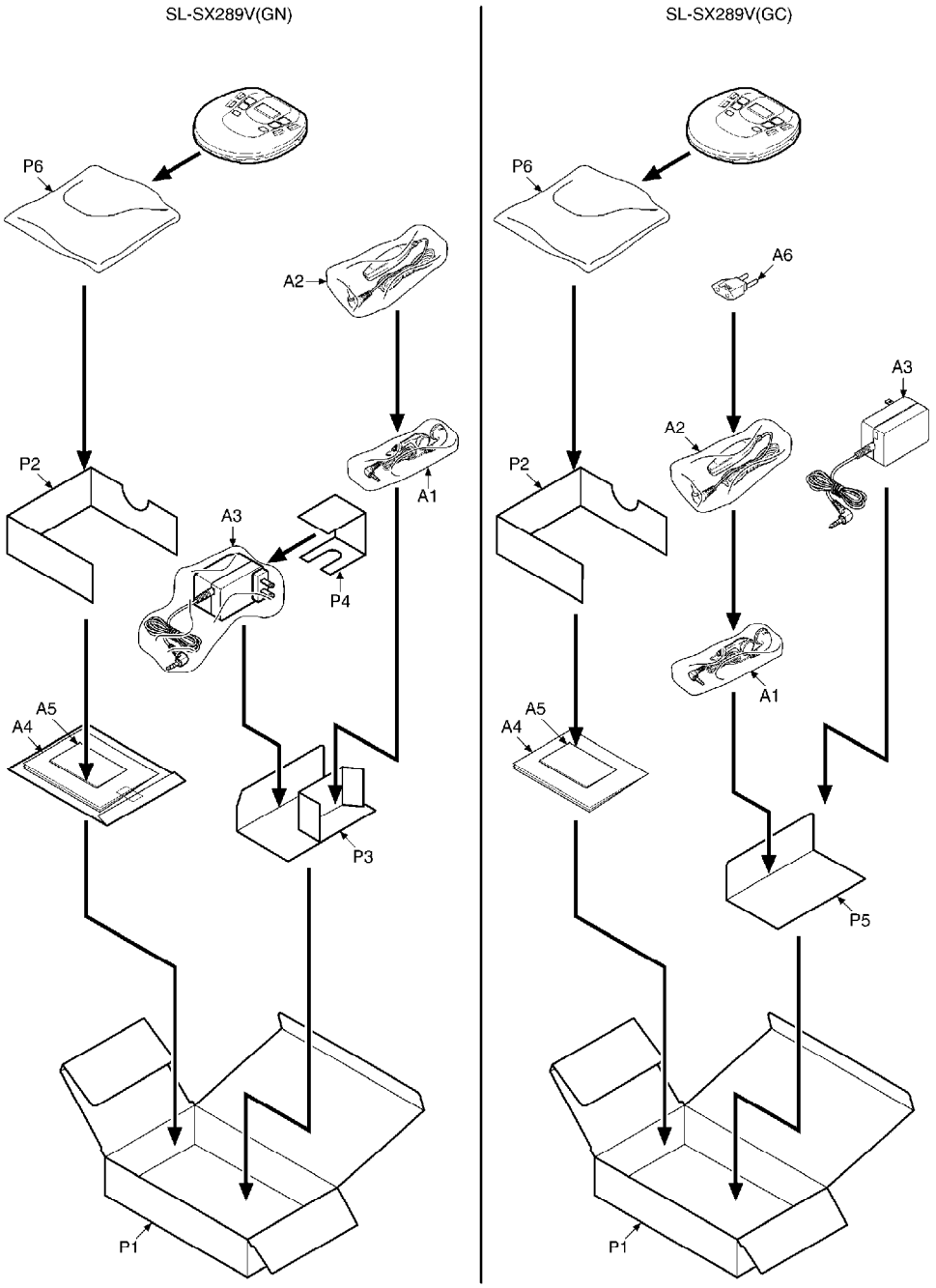
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R506	ERJ3GEYJ222V	1/16W 2.2K	1	
R508	ERJ3GEYJ3R3V	1/16W 3.3	1	
R509	ERJ3GEYJ472V	1/16W 4.7K	1	D0GB472JA002
R511	ERJ3GEYJ222V	1/16W 2.2K	1	
R512	EXBV4V222JV	1/32W 2.2K	1	
R513	ERJ3GEYJ104Z	1/16W 100K	1	
R514	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002
R516	ERJ3GEYJ181V	1/16W 180	1	
R603	EXBV4V561JV	1/32W 560	1	
R605	EXBV4V473JV	1/32W 47K	1	
R607	EXBV4V103JV	1/32W 10K	1	
R705,06	ERJ3GEYJ1R0V	1/16W 1	2	
R707	ERJ3GEYJ224V	1/16W 220K	1	D0GB224JA002
R708	ERJ3GEYJ104Z	1/16W 100K	1	
R709	EXBV4V102JV	1/32W 1K	1	
R711	ERJ3GEYJ104Z	1/16W 100K	1	
R731	ERJ3GEYJ103Z	1/16W 10K	1	
R755,56	ERJ3GEYJ562V	1/16W 5.6K	2	D0GB562JA002
R757	ERJ3GEYJ103Z	1/16W 10K	1	
R758	ERJ3GEYJ104Z	1/16W 100K	1	
R759	ERJ3GEYJ105V	1/16W 1M	1	
R781	ERJ3GEYJ394V	1/16W 390K	1	
R901	EXBV4V821JV	1/32W 820	1	
R906	ERJ3GEYJ470V	1/16W 47	1	D0GB470JA002
R1000	ERJ3GEYJ123V	1/16W 12K	1	
RJ101	ERJ3GEY0R00V	1/16W 0	1	
S201	ESE11SV6	SW,LASER ON/OFF	1	
S202	ESE11HS4	SW,REST DET.	1	
S310	RSS2A010-1A	SW,HOLD	1	K0D112B00071
VR1	D3DA3104A002	V.R.,FM RF ADJ.	1	
X301	RSXC75K0L02T	OSCILLATOR	1	H0J750200006
X501	H2D169500011	OSCILLATOR	1	

17. Cabinet Parts Location



Note : We do not supply those items of parts marked ✻.

18. Packaging



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